Industrial FINISHING

NO NATION on earth can match the industrial production of these United States, and by the same token, no nation (or combination of enemy nations) can equal our war production, once this mighty force is converted and organized for war production. Industrial America aroused and on the "war path" spells doom to the aggressors and oppressors and we of the Lilly Varnish Company will be proud to have contributed to their downfall. If you need protective coatings for war goods or if you need advice or consultation on any finishing operation, the services of our entire organization are at your disposal.

LILLY VARNISH CO.
INDIANAPOLIS, INDIANA
THE LILLY CO., HIGH POINT, N. C.

We Modernize Our Name

IN view of the steadily increasing diversity of our products, our original firm name of Roxalin Flexible Lacquer Company has become more and more restrictive in its implication that our materials are of cellulose origin exclusively.

During the 18 years since we first produced our flexible, direct-to-metal lacquers (which are still outstanding in their performance) we have worked with practically every surface coating raw material, including the new ones as they became available.

As a result, our Technical Department is thoroughly grounded in all phases of the development of special purpose finishes, and our production facilities include a modern varnish making plant, where the latest techniques in processing synthetic resins and treated oils are utilized.

Because of this diversification, Roxalin coatings are used in more than a hundred different types of industry, including many which are now producing essential war materiel.

No change in organization, management or policy is involved in modernizing our name, in keeping with this broad scope of activity, to ROXALIN FLEXIBLE FINISHES, INCORPORATED, Elizabeth, N. J.

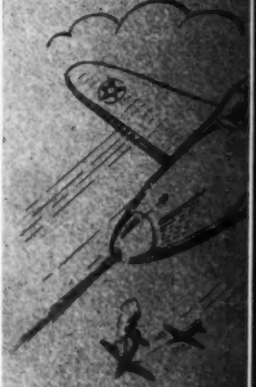
ROXALIN Flexible FINISHES

"WHERE THE FINEST COURTS USE ROXALIN"

46,000 "Reminders FOR THE AXIS EVERYDAY!

Paasche F42-144 Automatic Unit

For airpainting 20MM, 37MM, 40MM shells and miscellaneous pieces. 1,920 shells per hour with three minutes drying time.



ARTILLERY of the AIR

The Bell Airacobra with its 20 or 37 MM Cannon in the nose strikes the enemy with terrific speed and effect. Paasche Automatic Units provide the perfect finish for these shells protecting them from production line to firing line.

FREE!

Send for bulletin F3-... giving detailed information and specifications on Paasche automatic units and special equipment for airpainting shells, bombs, land mines, and other parts.

Paasche streamlined automatic airpainting units with production capacities of 46,000 shells per 24-hour day are now operating on gruelling schedules in scores of war plants. These units perform with unequalled efficiency and economy. They are engineered and built to take the toughest production demands. Coating exteriors and interiors automatically, they produce perfect finishes that pass the most exacting Ordnance inspection.

CONSIDER THESE SUPERIOR *Paasche* FEATURES

- ★ Quick and easy to get into operation—connect power and air supply lines and they are ready to go!
- ★ Designed for 'round the clock production with minimum of maintenance.
- ★ Exclusive Paasche time-saving features—simple construction, easy to service.
- ★ Quickly adaptable for shells of various sizes and types. Also for bombs, grenades, fuse parts and other pieces. Can be used for peace-time production as well.

If you are in war production—let Paasche airpainting equipment help you increase output and solve your finishing problems.

Paasche Airbrush Co.

1917 DIVERSEY PARKWAY
CHICAGO, ILLINOIS

Idle Drums Delay Deliveries

Keep them rolling back to Zapon

Do you realize that there are 25 square feet of steel in a 50 gallon drum? That means a lot of metal, critical in the war effort, is immobilized on junk-piles, in store rooms, wherever drums lie idle. It means deliveries are delayed. Remember the government has allowed re-use of "non-returnable" drums and pails.

So please dig out idle drums and steel pails—get them rolling back to us. And send them back in good shape—otherwise they're not much good. That means, replace plugs and covers, when empty; don't lose lugs; bend lugs all the way around when removing covers; don't batter or dent the containers, keep them out of the elements.

Look around the plant now. You'll be helping the war effort and yourself, as well as assisting us to keep deliveries going. Unless you do your part, we can't fully conserve metal needed for war.

ZAPON

ZAPON DIVISION · ATLAS POWDER COMPANY

Eastern Sales: Stamford, Conn. Western Sales: North Chicago, Ill.

INDUSTRIAL FINISHES

EIGHTEENTH YEAR OF PUBLICATION

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVIII, No. 7 **MAY, 1942** **$2.00 a Year**

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Letters from Readers...

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

"Plated" Finishes

Will you kindly contact the firm that is mentioned in your March 1942 issue, page 7, in regard to a substitute for plated finishes? We are manufacturing a line of shell hardware for caskets which has been plated nickel and cadmium. Now that both of these finishes are no longer available, we are in the market for some substitute that will be both attractive and rust preventive.—E. T. W. (Metal Stampings; Hardware).

Information supplied.—ED.

Rubbing Machine

We are interested in securing, for trial, a machine for rubbing flat-lacquered finishes. We would appreciate it if you would give us the name and address of a concern who makes a tool of this kind.—R. Mfg. Co.

Information given.—ED.

Small Parts Production

Will you kindly send the name and address of U. Mfg. Co., whose inquiry about methods of enameling small hardwood parts appears on pages 8 and 103 of February 1942 INDUSTRIAL FINISHING? We are specialists in this work and are agents for the Ronci Speedip Enameler.

We are now building a number of machines for coating hot waxes on airplane radio parts for Government contractors. The wax and air temperatures are automatically controlled. The machines, as developed by us, have proved to be a great help to these manufacturers.—P. C. Co. (Production Engineering Corp.)

Viscosity Cups

Please send me prices and information on Ford or DuPont viscosity cups for clear lacquers to be sprayed upon metals.—P. J. Co.

Penetrating Wood Sealer

We are interested in article No. 135, appearing in your January issue, referring to a protective, penetrating wood sealer. We would appreciate any information that we might obtain in order to contact the manufacturers of this material.—S. T. Co.

Information given.—ED.

Will Make Molded Plastics

In reading through your January 1942 issue, I came across a letter on page 12, in which a request, over the signature C. I. Co., asks for information regarding a wood plastic. Tri-Plastic Advertising Co., Inc., 101 Prince St., New York, N. Y. is a molder of such a material, and would like to be put in touch with the "C.

VINDOLAC

Still Available to Our Regular Trade, Also

DU BAR BLEACH WATEROIL STAINS

FILLERS . . . No. 1900 CLEANUP POLISH

and numerous other items

Although most of our facilities are now directed toward manufacturing Government products, we are still making every effort to supply regular customer requirements.

V. J. DOLAN & COMPANY, INC.

Mfrs. of "Unquestionable Quality" Industrial Finishes

1830 N. LARAMIE AVENUE CHICAGO, ILLINOIS

Do You

Air Dry or Force Dry?

Perfection Synthetic Flat Finishes will do both. Air dry overnight or force dry in 1½ hours at 140°.

FURNITURE FINISHED A LIQUOR PROOF WATERPROOF FINISH — PERFECTION PAINT & COLOR CO. INDIANAPOLIS

Panels coated with Perfection Flat Varnish can be immersed in water for 30 days without turning white or showing any other ill effects. Write us and we'll send panels and samples — and also a panel in water for 30-day immersion test.

PERFECTION FLAT FINISHES contain no stearates or other flattening agents. They are made 100% from gum, hence are as clear as gloss varnish — entirely free from milky appearance of conventional flat varnish.

Also, PERFECTION SEALER VARNISH covers 65% more surface than lacquer sealers — try them today.

PERFECTION PAINT & COLOR CO.

Indianapolis, Indiana

UNITED'S DEFENDER LINE
OF PROTECTIVE COATINGS

Meet Government Specifications

War products often require specially formulated protective coatings to meet the exacting conditions of wear, tear and abuse which they will receive in actual use. United's chemists have developed the DEFENDER LINE of protective coatings to meet Government specifications and requirements. If you have a production finishing problem on priority rated products you will find a quick solution among UNITED'S DEFENDER Line of protective coatings.

Send us your specifications and requirements—working samples and complete information will be sent promptly.

LACQUERS
THINNERS
ENAMELS
METALIZED FINISHES
SYNTHETICS

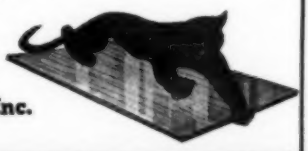
UNITED LACQUER MFG. CORP.
General Offices and Factory: Linden, New Jersey
New England Mfg. Division: Boston, Mass.

You'll get **finish durability . . . . . speed,** *too*
in modern KILNVAR

In many finishing rooms, KILNVAR has supplanted other finishing methods after production tests have proved its fast-working qualities—its durability and rich beauty. KILNVAR is available in Gloss-Rubbing, Semi-Gloss and Flat effects. . . . BAKESEAL is the tough, full-bodied undercoat that provides the proper foundation for KILNVAR. . . . Arrange now for a production test of the Bakeseal Kilnvar Finishing System — you have everything to gain!

FOR EITHER FORCED OR AIR DRYING

Write direct or arrange through the Schaefer representative who calls on you.



THE SCHAEFER VARNISH CO., Inc.
Louisville, Kentucky

I. Co." Would you please give us the full name and address of your correspondent? We thank you in advance for the consideration we know this letter will receive.—Tri-Plastic Advertising Co., Inc.

Information supplied.—ED.

Luminous Paint Sheets

On page 24 of your March issue, you present an article on blackout luminous paints and a luminous product furnished in sheets. Could you put us in touch with some manufacturers of these products who would care to have representation in the state of New Jersey or in the Metropolitan Area of New York City? We would appreciate any assistance you can give us in this matter.—H. & S.

Burning-in Knives

We would appreciate it very much if you would have any concerns who manufacture electric burning-in irons used for wood finishing, contact us, sending us descriptions and prices of machines that they make for this work.—J. Mfg. Co.

Crack Filler

Can you please furnish us with the information as to the source of Crack-No and SOS wood filler to be used in the process of wood finishing? — F. Mfg. Co.

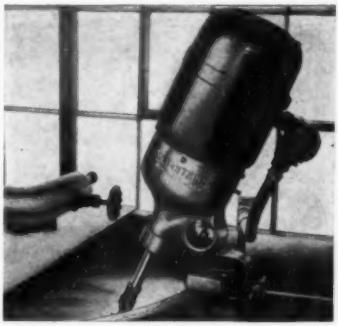
We do not find what concerns make or sell these particular brands, but we are sending you information about others that are reported to be entirely satisfactory.—ED.

Air Motors

Will you please advise the names of manufacturers of air motors?—Spray Equip. Co.

Data on Marlox

We have seen a reference, on page 238 of the November issue of "Paint Technology," to a new plastic coating, Marlox, and on applying for details have been referred by the Editor of "Paint Technology" to you. We are interested in materials of this type and should be very grateful for any information you could obtain for us on the properties of this product, par-



Direct Drive "LIGHTNIN" Portable Mixer used for maintaining proper consistency and suspension of pigment in a special enamel. Where colors vary frequently and quantities are not too large, this type of agitator can be conveniently changed from one tank to another.

KEEP PIGMENTS IN UNIFORM SUSPENSION AND REPLACE EVAPORATION LOSSES WITH A "LIGHTNIN" MIXER

With primer dipping tanks operating 24 hours a day, consistency must be constantly maintained in the quickest, most dependable manner . . the reason more "LIGHTNIN" Mixers are being specified than ever before.

The powerful "LIGHTNIN" Double Mixing Action drives pigments up off the tank floor and keeps suspension uniform. The complete bottom-to-top turnover plus a slow rotating which completely eliminates dead spots thoroughly mixes in thinner to make up for evaporation losses.

If you have a problem keeping pigments in suspension or keeping consistency uniform, consult us. Our specialized mixing experience is yours for the asking.

MIXING EQUIPMENT COMPANY, INC.

1027 GARSON AVE. ROCHESTER, N. Y.

1-9-4-?

Some year the war will end.

Swords will be beaten into plowshares, and golf clubs and refrigerators.

There will be a swing back into the things we buy because we like them and not because they are a grim necessity.

You are planning these things now, or should be. Let us plan with you toward the finish for 194?, whenever it is.

We welcome any call for cooperation on long-range planning for the finish of the future.

Meantime, for 1942 and as far as we can see, we shall do our utmost to supply our customers with the best available materials and service permitted by wartime conditions.

The Varnish Products Company

5288 HARVARD AVENUE

CLEVELAND, OHIO

ticularly with regard to its solubility in various solvents, especially petroleum solvents.

We understand that it would not be possible to import this material, but possibly you could arrange for us to have a small sample for test. We should be very pleased if you could give us any assistance in this matter. —Asiatic Petroleum Co., Ltd., London, England.

We have referred your inquiry to the manufacturer of "Marlox," the Marley Chemical Co., Detroit, Mich. —Ed.

"Coating Plastics" Article

Will you please forward to us a copy of your article "Problems You Face and Can Solve When Coating Plastics"?—C. & D. (Fabricators of Plastics.)

Will you please send us a copy of the article appearing in your March edition entitled, "Problems You Face and Can Solve When Coating Plastics"?—W. Can Co.

This article appeared in March 1942 issue, pages 32, 37, 38 and 39. We are sending you tear sheets of same.—Ed.

Portable Still Wanted

In your February issue, on page 25, you have an article referring to a portable still. At the end of the article you give the name of the Phillips Mfg. Co. Will you please give us their full address so that we can get in touch with them?—S. M. Co.

Will you please have the Phillips Mfg. Co. send full particulars, including price, of the portable still for solvent recovery, as advertised in your February issue?—X. Radio.

Request granted.—Ed.

Wondershene Varnish?

We have been referred to you, by your New York Office, for information as to the manufacturer of Wondershene Varnish. We believe there may be a Wondershene Varnish Co., in California, but we are not definitely sure of this, nor do we know the address.—M. Radio Co.

The only thing similar to "Wondershene" that we find in our files is "Wondersheen," which was registered

(Continued on page 84)

Is *Olive Green* ON WOOD YOUR PROBLEM TOO?

nvestigate

RV 8294 1 COAT OLIVE GREEN

OR OFFICE EQUIPMENT TO REPLACE METAL

- Covers in one coat.
- Dries to lacquer hardness overnight.
- Greater coverage means lower unit cost
- Smooth — hard — marproof.
- Sets "dust free" in 30 minutes.
- Will bake in 1½ hours at 130° F.

Write for full details and samples.

LOOK TO **RELIANCE** FOR THE BEST FINISH

RELIANCE VARNISH CO., INC., LOUISVILLE, KY.

FAMOUS

FRANCIS OUIMET'S THRILLING FINISH!

BROOKLINE, MASS., SEPT. 19, 1913 ~ AS THE WORLD-FAMOUS ENGLISH GOLFERS, HARRY VARDON AND TED RAY FINISHED THEIR 72ND HOLE AT THE COUNTRY CLUB, IN A TIE FOR THE NATIONAL OPEN CHAMPIONSHIP, TODAY, A THRILL RAN THROUGH THE GALLERY AT WORD THAT AN UNCONSIDERED YOUTH OF 20, FRANCIS OUIMET WAS COMING WITH A RUSH AND A CHANCE TO FINISH EVEN WITH THE GREAT ENGLISHMEN! BUT OUIMET'S SECOND SHOT WAS SHORT. COOLY THE YOUNGSTER CHIPPED TO WITHIN FIVE FEET OF THE CUP...THEN TAPPED THE PUTT DOWN FOR A THREE-WAY TIE WITH VARDON AND RAY... ONE OF THE MOST ***FAMOUS FINISHES*** IN GOLFING HISTORY! (OUIMET WON THE PLAYOFF TO BECOME THE FIRST AMATEUR TO CAPTURE THE NATIONAL OPEN CHAMPIONSHIP.)

PITTSBURGH

FINISHES

NOT GUESS WORK... BUT TEST WORK

ASSURES THE RIGHT PITTSBURGH FINISH EVERY TIME!

NOTHING IS LEFT TO GUESSWORK IN THE MANUFACTURE OF PITTSBURGH PAINTS. EVERY FINISH MUST PASS THE MOST EXACTING TESTS EVER DEVISED TO PROVE ITS RIGHT TO THE PITTSBURGH LABEL. TODAY, PITTSBURGH'S TECHNICAL MEN ARE COOPERATING WITH INDUSTRY IN AMERICA'S WAR EFFORT.... HELPING DEVELOP THE BEST AND MOST EFFICIENT FINISHES FOR EVERY PHASE OF WAR PRODUCTION. IF YOU HAVE ANY SPECIAL FINISHING PROBLEM, ONE OF PITTSBURGH'S EXPERTS WILL BE GLAD TO CALL AT YOUR CONVENIENCE TO HELP YOU FIND THE SOLUTION.

PITTSBURGH PLATE GLASS COMPANY

INDUSTRIAL PAINT DIVISION • PITTSBURGH, PA.

FACTORIES – MILWAUKEE, WIS.; NEWARK, N.J.; HOUSTON, TEXAS; LOS ANGELES, CAL.; PORTLAND, ORE.
THRESHER VARNISH DIVISION, DAYTON, OHIO.

Industrial FINISHES

Aviation Engines

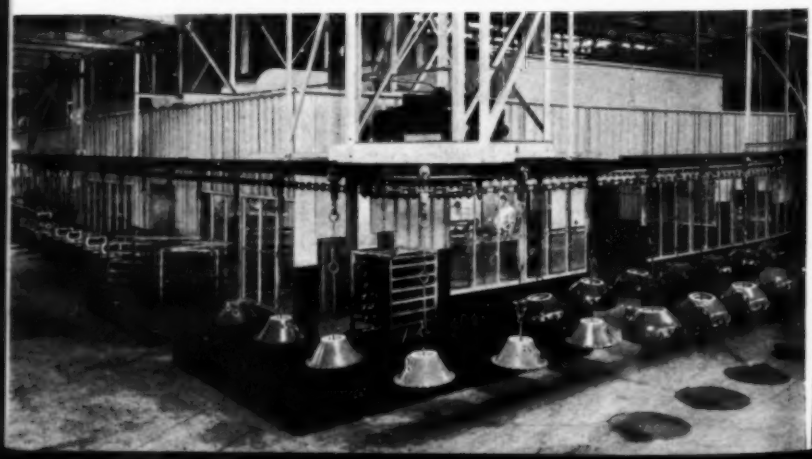
AND THEIR PROTECTIVE COATINGS

THE various different types of materials used in the construction of aircraft engines, together with the atmospheric conditions prevailing in different parts of the world and at different altitudes, conditions which may vary from tropical to sub-artic, have long constituted a problem in the minds of metallurgists and finishing foremen, whose efforts are directed towards the prevention of corrosion and deterioration. How successfully this problem has been met may be judged by the fact that protective coatings have been developed which will not only withstand hot salt water spray for many hours, but will even resist such brutal treatment as heating at various temperatures and quenching in gasoline or oil.

During the past 20 years many changes have been made in the methods of cleaning before painting, and in the actual production painting. Organic cleaners, lead primers, and slow-drying oil enamels baked in box type ovens, gave place, in the interest of faster production, to oleoresinous primers and pyroxylin lacquers; but while these possessed certain good qualities, they lacked the durability of the synthetic baking enamels now generally employed. During the past ten years synthetic-resin base vehicles of the glycerol-phthalate type have come more and more to the fore, and have proved definitely superior for this type of work.

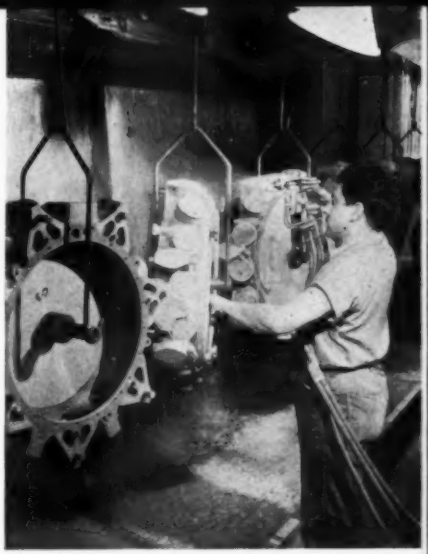
The surfaces of castings, which are to be painted, are sandblasted and polished in the foundry, a step

Spray painting set-up . . . continuous conveyor type. Operators spray parts in air-conditioned booths. A water curtain and complete exhaust system remove all paint fumes.



What treatment and coatings are used to protect surfaces of new aircraft engines from corrosion and deterioration due to service handling, heat, drenching by gasoline and oil, and exposure to atmospheric conditions all over the world.

BY M. FIORENZA



Suspended from hooks on the conveyor, the engine parts pass through water-wash spray booths wherein they receive their protective coatings efficiently and economically.

that eliminates the paste filling of the surfaces. Parts that have been machined are first carefully cleaned of all oil and chips by passing them through a conveyor-type washer in which they are sprayed with an emulsified solution at a temperature of 185° F., and then rinsed with a clean hot water spray. In the case of aluminum parts, the anodic process is used to prepare them for painting. While the purpose of the chromic-anodic film is primarily to promote good paint adhesion, it also has in itself excellent corrosion resistance. The process consists of making the engine part the anode in a 5% (approx.) solution of chromic acid, using 40 volts for 30 minutes at 95° F. This gives a current density of approximately 1.0 ampere per square foot. The anodic film forms somewhat in the same fashion as the bark of a tree, as progressive oxidation takes place, with the result that the oldest portion of the film is at the outer surface. This is the opposite to what takes place during electroplating.

Magnesium parts are treated by a process known as Dow Treatment No. 7. After the parts have been washed they are cleaned in a vapor degreaser with trichlorethylene, and then pass through five successive baths. The first is a dip in hydrofluoric acid, followed by a cold water rinse. Next they are immersed for 45 minutes in a sodium dichromate solution, rinsed in cold water, and finally rinsed again in hot water to promote quick drying. The resultant coating will vary in color from dark brown to black, and has been found to be highly resistant to corrosion. At the same time it forms an excellent base for the zinc chromate primer.

Steel parts exposed to the weather are, as a general rule, electroplated, usually with cadmium, but certain parts that are to be finished by painting are commonly bonderized.

The painting procedure is usually as follows: After the part has been prepared, either by anodizing, dichromating, or bonderizing, it is

placed upon a conveyor moving at a speed of approximately 13-in. a minute. Larger parts are suspended from individual hooks, while smaller ones are placed on special trays which may hold a dozen or more pieces. Threaded holes are closed by means of soft wooden plugs tapped firmly into place. Finished machined surfaces are protected by the application of heat-resisting masking tape. Sheet metal masks are also used where they may be applied without danger of damaging the finished surface.

The Painting Process

The parts now pass into a hydrofilter spray booth where they are sprayed lightly with a zinc chromate primer until a greenish color appears. Then they are carried by the conveyor through a gas-fired oven in which they are baked at 250° F. for 1½ hours. Upon emerging from the oven the parts pass into a cooling chamber where currents of cool air reduce the temperature to the point where the parts may be safely handled. Still on the conveyor, the parts are lightly sanded, and then pass through a second spray both for the application of the first coat of synthetic-resin enamel. This is similarly baked, cooled, and sanded, and then carried through a third booth for its second coat of enamel.

In the case of magnesium, this second coat is also sanded, and a third coat is applied, since this metal is particularly susceptible to corrosion. After the final baking operation the parts are stripped of all masks and placed on skids or in containers for delivery to the inspection department, or they are returned to the machine shop for final machining operations.

Frolics in the Finishing Room—9

I HAVE IN mind a good hard working sprayer—and his helper who would not resist the temptation of pulling a joke. The sprayer was at his work, speeding along on various pieces of furniture that

had been sent to his station to be sprayed, entirely unaware that he was about to be made the victim of a joke.

His helper, knowing that the sprayer was easily disturbed by any crashing noise behind him, obtained a large metal fernery pan and slammed it down directly behind the spray operator. This made a loud noise like an explosion. The sprayer, having been subjected to shell shock during the other World War, threw up his hands, letting the spray gun fly into the air. He fell to the floor trembling and went through a fit of shock that was terrible to see.

To my knowledge this was one of the cruelest jokes that I have ever heard of. However it was played only once. The helper was promptly fired and all other employes were warned against playing such a prank.—F. W. WORTH.

COOPERATE WITH YOUR SUPPLIER TO AVOID

Shortages of Materials

BY RUSSELL DAVIS

Some timely suggestions and recommendations for finish users in reference to their transactions with suppliers of finishing materials.

MUCH has been said in the past about shortages of finishing materials. Three or four months ago the situation looked bad—and for a month or so it was, because many paint manufacturers were caught short on lacquer solvents and could not supply some of their customers. However, since the Government Priorities Board has gotten things to running a little smoother, the paint manufacturers have been getting their supply of solvents and other materials and can now take care of their business. If the users of finishing materials start to hoard and stock up, finish manufacturers will not be able to take care of them because the paint concerns are being allotted only so much each month.

Since the discontinuance of production on automobiles, radios and other civilian items, the future for the furniture manufacturers looks brighter in more ways than one. It means that there will be more lacquer solvents available so that furniture companies can be supplied with lacquer sealers and gloss lacquers, because all of the solvents that went into lacquers for automobiles and radios can now be used for lacquers for the furniture trade. However, some lacquers will be used by the Government for the painting of bomb fins and other small items. There is still no hope for synthetic enamels being available for civilian use.

Large Volume of Furniture to be Purchased

The year 1941 was a "bouyant" year for the furniture trade and the paint manufacturers. The furniture trade enjoyed large sales and increases in profits. The year 1942 promises to be even a better year, since the public will surely spend their "inflated" money on furniture, with the discontinuance of refrigerators, radios, automobiles and many other things. Then too, there is no shortage of lumber at the present time and the Government does not intend to shut down any furniture factories.

Here is an item of interest to the trade: The Government is going to buy furniture for 90,000 homes of defense workers in arms

plant centers during 1942. The cost of the furniture is estimated at $36,000,000. Further, it is estimated that about $100,000,000 will be spent by the Government for furniture in 1943. This furniture will be purchased through local retail dealers throughout the country.

Shortage of Containers for Finishing Materials

The manufacturers of finishing materials however, at this writing, are facing a serious problem and that is containers and steel drums in which to ship their products. Every day the matter becomes more grave. Unless users of the finishing materials cooperate with the paint manufacturers, someone is going to be kept waiting. Paint companies have purchased all of the drums they can get and they have had to pay high prices for these used drums. The I. C. C. and the Bureau of Explosives have permitted the reuse of single tripper steel drums, has helped some.

The way in which every one of you users of finishing materials can help is to check over your factory grounds for empty drums and see that they are returned to their rightful owners. Instruct your finishers to take the best care of these drums and then send them to the shipping department as soon as they are empty. Don't wait until you accumulate a large number of drums. You can ship them any day by truck; it will cost you no freight.

How to Order Materials

By all means don't buy enough finishing materials to run you for three or four months. If you want to be sure of delivery—sure of having enough to run you for three months—place your order with the paint salesman for what you want for the next two months or so, and arrange for delivery dates for just enough to run you two weeks or so at a time. You will find this much better than laying in a large supply and tying up a lot of drums. Then too, the paint manufacturer will know how to order and he will see that you are taken care of. In this way you will receive fresh material. The paint manufacturer has been asked to not lay in more material at one time than what he has to have to fill orders.

Remember the drums now in use cannot be replaced at any cost. Damaged drums that come back with holes cut in them for air vents cannot be repaired, so they are thrown out as scrap material. Right at the present time, many drums are setting around in storage, as some dealers bought a large supply of lacquers some time ago. These should be used now, before ordering more material.

If everyone will cooperate I am sure the entire industry will be benefitted and users of finishes will be assured of getting all the material needed and better service.

Some of our customers have already placed orders for material, with instructions for so many drums to be delivered in May, etc., and it has proved helpful in many ways. It gives us more time to get their order ready and we can figure on how much material and how many drums will be needed.

At the present time, some manufacturers are short on help, due to some of their men having gone into the service. These men, at the present, cannot be replaced, so many jobs have to be doubled up and this causes some delay in filling orders. If the trade will cooperate and bear with us, it will be appreciated by every manufacturer of finishing material.

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● A field gun can't fight with ammunition that's lying in some factory—waiting to be painted with slow, obsolete, inadequate finishing equipment.

American munitions manufacturers know the facts. The production of arms and war supplies must be speeded up —three shifts a day, seven days a week. And finishing equipment must be adequate to handle that volume.

A single automatic shell painting machine like the one shown—capable of painting over 2000 Armor Piercing Shot an hour, 168 hours a week—may spell the difference between victory and defeat for some American force on a distant battlefront at some not-too-distant-day.

No matter what type of war material you're making—shell, bombs, guns, tanks, trucks, planes, fighting ships

This DeVilbiss machine can finish 30,000 Anti-Tank Projectiles a day!

or tiny sub-assembly parts—there's a DeVilbiss Spray System designed to coat or finish it faster and better. And to keep doing it, uniformly and dependably, without let-down or break-down. If you haven't got that system in your plant—get it. Not next year. Not next month. But NOW!

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Finishing Upholstered Furniture Frames

BY HENRY NOVAK

I BELIEVE more consideration should be given to the finishing of upholstered furniture frames. Of course, there are many frames on the market that have an attractive finish; this is decidedly the case in the higher grade lines.

On the other hand we often see finishes that are not uniform in color, or they are of poor color. Some finishes have a faded appearance; others have that "hungry looking" effect for lack of body. Some of the glazed finishes are "muddy"; frequently too much glaze has been left on the work, or there is evidence of poor highlighting or faulty blending.

There is such a small area to be finished on upholdstered frames, with the exception of certain period and elaborately carved ones, that manufacturers have not given enough attention to the finishing. A poor finish certainly does detract from the appearance of a piece of living room furniture. I've seen it many a time. Look in the show windows of furniture stores and see for yourself.

The designer should work more closely with the head of the finishing department and the supplier of materials, and help work out a definite finish as to color, durability, appearance, system, cost and schedule, and then adhere to it. Naturally, we realize that care must be taken to avoid spending too much time and money on this type of finishing, but many times one small added operation will improve the appearance of a piece to such an extent that it immediately becomes a product of beauty.

In this article I will describe some methods of finishing that are being used successfully on gumwood, tupelo, poplar, birch, willow and maple. First, the exposed surfaces of all frames should be perfectly smooth. All cracks, dents and holes should be filled satisfactorily, and the repaired places should be smoothed over. Not enough attention has been given to this detail. The first requisite of a good finish is to have a good foundation.

A Tough Durable Finish

One system, I have in mind, is very fast and it produces a durable coating that is especially resistant to hard knocks. As a matter of fact, one furniture manufacturer has half a dozen finished gum carvings in a space at the Furniture Mart and he demonstrates the toughness of the finish by letting prospective buyers knock these finished pieces together and "thumb nail" them. He also supplies a hammer for pounding them. The result; no chipping or white marks. These finished pieces really take punishment.

The finishing system is as follows:

Spray on a full wet coat of good combination stain sealer—one that is fast to light and tough, and of the shade desired. Allow this to dry from 45 minutes to one hour. Sand with No. 6/0 sandpaper or use No. 3/0 steelwool. Note: Wet the back of the sandpaper to make it soft and flexible, or use worn sandpaper so as to avoid sanding through on edges or protruding parts—so that glaze will not spot by penetrating the wood.

Brush or spray a coat of walnut speed glaze, reduced to the desired consistency. Wipe the excess glaze from the piece with a soft rag and then blend and highlight with a soft brush. I have used mostly a good filler brush, the size depending upon the size of the work to be blended. Let this special glaze dry for approximately 15 minutes and then spray on one coat of high-solids heavy-body lacquer of the correct sheen.

Speed Glaze; Blending

This speed glaze stays open and is very easy to blend; it can be coated with lacquer a few minutes after blending. A piece can be blended and can stand for several hours and still it can be blended with a brush in case of finger marks or reblending. This glaze actually toughens the finish. It has been tested, using the same sealers and lacquers on panels with and without the glaze.

Bear in mind, however, that no shellac or shellac-type sealers can be used over this glaze. These types of sealers are all right to glaze over, but a lacquer or lacquer sealer must be used over the glaze. The system just described is being used successfully on conveyor systems.

If there are some extremely black streaks in the wood, it still can be finished perfectly. Treat the wood in the white by brushing or

spraying a lacquer enamel of the correct shade over the black streaks. Then finish off with colored sealer, glaze and lacquer. I saved one furniture manufacturer 300 solid maple davenport arms using the method just described. This combination stain-sealer, glaze and lacquer system gives a very uniform color and finish.

Pigment Wiping Stain

Method No. 2 starts with dipping or spraying a pigmented wiping stain—one that doesn't spot and leave the endwood black. Wipe and allow it to dry four hours. Some P. W. stains require less drying time, while others may need to dry overnight. Spray on a coat of sanding sealer, with a small amount of walnut non-grain-raising stain added to help give it life and uniformity. Sand with No. 6/0 sandpaper or No. 3/0 steelwool. Air dust or brush to remove the dust or steelwood particles; then spray on a coat of lacquer. If there are some extremely light places showing after sealing, these should be shaded in after sanding the sealer, using a lacquer shading stain of the correct color.

Method No. 3 also calls for the use of a pigmented wiping stain, sprayed or brushed. This stain is wiped and blended. It is more or less a staining and glaze antique in one operation. Naturally, it is up to the man doing the glazing to know how and where to blend and highlight, and how much glaze should be left on the surface to provide a nice finish. This is followed by a coat of lacquer sealer, which can be tinted slightly for additional color and uniformity. Sand the sealer with No. 6/0 sandpaper or No. 3/0 steelwool; dust off and spray on a coat of rubber-effect lacquer.

French Walnut on Gumwood

Brush or spray the surfaces with one coat of shellac (about a 2-lb. cut) or a lacquer sealer or a shellac mixing lacquer solution. Allow this to dry for one to two hours; sand smooth; spray one coat of lacquer enamel or undercoater about the color of putty. Allow this to dry one to two hours and sand it lightly to knock off the nibs. Spray on one coat of sealer — shellac or lacquer type. Sand smooth with No. 6/0 sandpaper. Wipe or blow off the dust; brush or spray French walnut speed glaze and wipe with a soft rag; then blend with a soft brush, being careful to avoid showing any brush marks. Spray on one or two coats of medium rubbed-effect lacquer. I would suggest an extra coat of lacquer for the arms and places that are likely to receive a lot of wear, so the finish will not wear through to the glaze and enamel. This gives a beautiful and tough French walnut finish.

Mahogany Finish on Mahogany, Maple and Birch

There are several good systems that will produce a durable and attractive finish. Of course, one must have an eye for color and the ability to apply the materials in the right manner to obtain a finish that is appealing to the critical prospect and to the general public.

Spray on a coat of non-grain-raising stain of the yellow-orange cast. Allow it to dry about 15 minutes. If the frames haven't much carving, but do have large surfaces of flat plain wood, the mahogany should be filled with a good mahogany filler mixed in the proportion of, I should say, 10-lbs. of filler paste to one gallon of naphtha. Brush on; when it sets

dull or flat, wipe it off across the grain of the wood with rags; then wipe the surface lightly with the grain, using a buff cloth to take out any cross streaks that might show.

Washcoat Before Filling

Some finishers washcoat the stained surface before filling. Really, this is the proper thing to do to obtain a clear deep finish —and a small amount of the same stain can be added to the washcoat; or shellac or lacquer sealer can be added to the stain in the proportion of say three parts of stain to one part of sealer or shellac. This gives a combination stain-washcoat.

Now spray a coat of glazing sealer over the filled frame. This also can be tinted for additional depth with the same stain. Allow it to dry for one hour and sand with No. 6/0 sandpaper or No. 3/0 steelwool. Now is the time to do any decorating in gold that may be specified.

Brush or spray the special mahogany speed glaze, which is made mostly of Van Dyke brown to give it that clear deep color, free from any trace of muddiness. Within 10 to 15 minutes you can spray the surface with a high-sheen lacquer. Allow this coat to dry several hours and spray on the second coat. Let second coat dry overnight.

Technique of Rubbing

Rub with pumice stone and white oil. To rub the carvings, use a worn-out filler brush or a 4-row scrubbing brush. Blow excess pumice from the carvings with an airbrush and use a good cleaner that reduces with water or soap and water to clean the surfaces to make them free from pumice and oil. I prefer to use white mineral oil with pumice, when rubbing, because it doesn't cause pumice left in the carvings to cake —when pieces that have been rubbed are put in stock for three or six months. The pumice becomes dry and can be blown out as dust with an airbrush. When using paraffin oil with pumice, I have had it caked as hard as a rock, and I always had difficulty in removing it.

The color produced by the foregoing method will depend on the shade of stain used. It can be varied in any desired shade from red to brown mahogany.

Another mahogany finish is obtained by using water stains, which still are being used by some manufacturers of high grade furniture in the upholstered lines.

Brush or spray on one coat of mahogany water stain. This should air-dry overnight, or it can be force-dried for 1½ hours at 125° F. and 35% humidity in a drykiln. This has been tried and proved successful in one of the largest furniture manufacturing plants in the country—a concern that produces medium and high grade furniture.

Washcoat with shellac or lacquer; allow the surface to dry for about one hour; sand wtih No. 6/0 abrasive paper, being careful to avoid sanding through the stain at sharp edges. Next fill, if necessary, as in the previous mahogany system. Apply a glazing sealer in a clear or tinted tone; dry one hour; sand smooth with No. 6/0 sandpaper or No. 3/0 steelwool. Dust off and apply mahogany glaze; do careful blending with a soft brush. Finish off as in previous system.

Still another method is to spray a wet coat of combination stain-

sealer—one that is on the orange side. Let it dry for 45 minutes to one hour; sand with No. 6/0 sandpaper or No. 3/0 steelwool; dust this off; then brush or spray a coat of mahogany glaze; wipe with a soft rag; then blend. Spray a coat of rubbed-effect lacquer; dry one to two hours and apply a second coat.

The more time allowed between coats the better the finish will be. That is one trouble we are having today: Too much haste and not enough time is allowed between coats. This is where force-dry systems are needed.

The stain in these sealers penetrates into the wood, as can be noticed by spraying part of a piece of wood and letting it dry thoroughly, then removing the surface stain with lacquer thinner. Notice the amount of stain that has penetrated into the wood.

Solid Walnut Frames

Walnut frames (solid walnut) are sprayed with a coat of light brown non-grain-raising stain, a little on the orange yellow cast. Use a light brown filler, just a little darker than the stained wood, wherever or when necessary, depending on the style of the frame. Spray a coat of glazing sealer either clear or colored; dry one hour and sand with No. 6/0 sandpaper or use No. 3/0 steelwool. Do the decorating on the sanded sealer. On carved walnut protruding parts, brush on Venetian red lacquer enamel. After this has dried, apply gold bronze with pencil brush, or mix the gold in the body of paste filler and apply with your finger over the Venetian red, hiding it. After this gold has become dry, knock off the gold in irregular spots, so that the Venetian red shows through.

Now apply glaze of rich brown color; wipe with a soft rag and do careful blending with a soft brush. Let this speed glaze dry 10 to 15 minutes and then spray on medium rubbed - effect lacquer. After an overnight drying, apply a brown antique wax with steelwool—or if a dusty appearance is desired, add a quantity of rottenstone to the wax. Be careful to avoid overdoing it with this rottenstone wax, as I've seen some nice pieces that were almost on the point of being called "borax."

If a musty moldy effect is wanted, use wax with rottenstone, plus a small amount of white pigment ground in oil, a small quantity of black in oil and a small quantity of chrome green in oil. This gives a real moldy effect.

Be sure that all end - wood is sealed before glazing. In many cases, where frames are poorly sanded (which, of course, shouldn't be) an extra coat of sealer will be necessary; otherwise the glaze will strike into the end-wood and leave black or dark spots.

I have in my home pieces finished by the systems just given—finishes that are six and seven years old—and they still hold their color, durability and appearance, and evidently will last for a long time to come.

Paul Sommer of Standard Varnish, Dies

A letter from the Standard Varnish Works, Staten Island, N. Y., states that, "We deeply regret to announce the death of Paul Sommer, Vice President, in charge of Industrial Sales, on Saturday, April 4th. He was 52.

"Paul Sommer was associated with our company since April of 1934, having joined us shortly after resigning the Presidency of the North Bergen Varnish Corp., which company he organized in 1928. Previously, he was connected with the National Varnish Co. of Long Island City."

Industrial Finishing Magazine
1142 North Meridian Street
Indianapolis, Indiana

Attention: Mr. W. H. Rohr, Editor

Dear Mr. Rohr:

Sometime ago we promised you an article for Industrial Finishing Magazine on the subject of reclaiming of spray coatings. During the past few months, we have been quite busy with an experimental program, the objectives of which are to determine the reclaiming characteristics and to devise suitable reclaiming procedures for the so-called defense finishes. The submittal of the article was intentionally delayed until the completion of our work on the above project because we felt that the article would be more complete and timely if we could include a statement regarding the finishes which will be used in ever increasing quantities on military equipment.

We believe that the enclosed article gives sufficient information to stimulate thought on the subject. You will note that we have stressed the conservation feature of reclamation which is consistent with your commendable editorial policy of emphasizing efficiency in finishing operations.

We have tried to make the article concise in order to fit in with the size of your publication. Should you find it necessary to suggest changes in the article, please feel free to do so. We shall welcome your comments and criticisms.

With appreciation for your interest,

Sincerely yours,

INDUSTRIAL COATING ENGINEERS

By John J. Zoland
John J. Zoland

JJZ:C
Encl.

Conservation of

CRITICAL MATERIALS IN SPRAYED COATINGS

JOHN J. ZOLAD*

IN THESE times of scarcity of essential materials, waste of any kind is not only unprofitable, but deplorable. The watchword today is CONSERVATION. Under these circumstances, it may be timely to review what has been done to eliminate one type of waste encountered in finishing operations; specifically, the spray loss commonly referred to as "over-spray." Where paint is sprayed in water-type booths, the over-spray is precipitated in the form of sludge. If this sludge is discarded, it represents a very substantial value not realized.

The problem of salvaging the unrealized value has been the subject of considerable research during the past several years. Early in the research program, it became apparent that the problem resolved itself into two parts; to wit, development of satisfactory methods of collecting the sludge and procedures for reclaiming to yield quality equal to that of the virgin material.

As a prerequisite to reclamation, it was evident that new methods of collecting the sludge would have to be devised to furnish material in suitable form for reclaiming. Where reclamation is not a factor, alkalies are commonly used in the water. This may be satisfactory from the standpoint of keeping the spray booths clean, but if used in sufficient concentration to do this the sludge, in most cases, is useless for reclamation because the alkali saponifies the resins or fatty acids in the paint.

Requirements of Suitable Recovery Medium

Fundamentally, the requirements of a recovery medium are threefold. First, the medium should lubricate the paint particle to prevent it from adhering to the booth surfaces; second, it should seal the particle from the atmosphere to prevent oxidation and polymerization; and, third, it should perform the first two functions without detriment to the properties of the reclaimed material.

While several recovery compounds have been used, continued research on this part of the problem finally led to the development of a compound, known in the trade as "Bricate" which, in widespread use, has proven itself to be a superior recovery medium and a satisfactory booth lubricant as well. It is used to coat the wet parts of a spray booth system and a small amount is added to the water in the booth unit. The Bricate coating will adhere to the booth surfaces even though water is sprayed against it or allowed to run down

*With Industrial Coating Engineers . . . General Motors Building, Detroit, Mich.

over it. The material which has been added to the water coats the sludge and causes it to be non-adhesive long enough to get from the booth to the tank from which it is collected. The quantity used up in this manner to coat the paint particles is replenished at periodic intervals.

Because the wash water leaches out acidic materials from the paint, the acidity of the solution will gradually build up. When this happens the sludge becomes sticky, which makes reclamation difficult and also leads to clogging of the spray booth system. To neutralize the acidity, ammonium hydroxide is added to keep the pH value in the range of 7.5 to 9.0. In this range, the sludge has the best consistency for handling and reclamation.

Reclaiming Process Depends Upon Material Sprayed

The reclaiming processes vary, depending on the nature of the composition of the paint. In general, the steps comprise removal of the water, re-dissolving, clarifying, etc. Here, again, it is necessary to perform the operations without detriment to the quality of the reprocessed material. The types of procedures used may be classified roughly into three groups; one adapted to lacquers, another to oil base and straight alkyd compositions, and a third for urea formaldehyde finishes.

Lacquers have been satisfactorily reclaimed by spinning some of the water out in centrifugal driers and, if necessary, drying further in specially designed ovens. Oil base and straight alkyd synthetics have been successfully reclaimed by evaporating the water by heat and mixing. In the case of urea formaldehyde composition, the temperature has to be kept low to prevent polymerization. This is accomplished by the use of vacuum.

3,000,000 Gallons Reclaimed

Because of the worthwhile savings that can be realized, reclamation has been widely adopted in the finishing industry. As a measure of its ready acceptance, in the few years since it has become established practice, there is the record of nearly 3,000,000 gallons of paint reclaimed, representing practically all types of finishing compositions and including more recently olive drab finishes, zinc chromate primers, and shell lacquers. With proper collection of sludge and suitable reclaiming procedures, it is possible to secure reclaimed material which, in most cases, is equal to the original in all properties, including durabiltiy.

EDITOR'S NOTE: These added corrections, by the author, were received too late to change the set-up of the article.

It has occurred to us that credit should be given to the Chrysler Corp. for the development of the reclaiming processes which are the subject of the above article. This would probably be done best by substituting the following for the first sentence of the second paragraph:

"The problem of salvaging the unrealized value was solved by Chrysler Corp. a number of years ago. Continual research on the subject has been going on since that time."

Further, in view of the increasing importance of conserving critical materials in the widely used government specification coatings, we believe it will be desirable to draw attention to them where they are mentioned in the second sentence in the last paragraph; perhaps by italicizing the words "olive drab finishes, zinc chromate primers and shell lacquers."—JOHN J. ZOLAD.

Conservation Improves Finish on Furniture

BY W. F. DENTZER*

ALL true Americans keenly feel their personal responsibility to do their bit toward assisting in our all-out efforts, not only to preserve our way of living, but to contribute everything possible so that we, on the home front, may be at least partly worthy of the exploits of our great American forces in the zones of combat. Men in our armed forces are sacrificing everything dear to the human heart, even to their very lives, so that America, your country and mine, shall be preserved.

The wood furniture industry, now the leader in the durable goods field, finds itself in a favorable position. Wood, its main raw material, is still available in unrestricted quantities.

Demand for Furniture Points Upward

Curtailment of travel, largely through the freezing of sales on automobiles and tires, is a contributing factor toward bringing the American home once again into its own. The home, your home and mine, will occupy a position in our daily lives as the main place of entertainment, relaxation and comfort. The fireside and occasional chairs will have their appeal. The dining room will again take its indispensable place in the well furnished home.

Many southern furniture manufacturers are patriotically contributing toward the defense effort through progressive elimination of certain finishing materials so essential to the progress of our war production.

Conservation Begins at The Stain Booth

The so-called non-grain-raising stains are rapidly being replaced by water stains. The prime objection to water stain, in the past, has been the material and labor cost of washcoating with shellac, along with the added time required before sanding was possible. This has been completely overcome by working out a water stain and washcoat combination for spray application in one operation; it dries with the raised wood fiber stiffened, ready to sand as smooth as glass. The succeeding coat of wood filler will wipe clear, clean

* Southern representative for a manufacturer of wood-finishing materials.

Spraying furniture on the conveyor line.

and easy. Several satisfactory formulas are possible for this stain and washcoat combination to meet practically any situation.

Lacquer sealers are fast yielding to the easier to obtain substitute sealers—preferably varnish sealers that sand equal to lacquer sealers, have better build, greater mileage and infinitely better adhesion, which is an important factor in producing a tough mar-proof finish.

Conservation Through Curtailment of Lacquers

Gloss and flat wood furniture lacquers are rapidly being replaced with an entirely new type of synthetic varnish, now available and unrestricted. It will air-dry overnight or will dry in as short a time as 90 minutes, depending entirely on the temperature to which it is exposed.

This varnish ranges in sheen from just off the high gloss, down to a dead flat. The flat varnish is as clear and transparent as gloss varnish. All the flat sheen will either dull rub, or rub and polish, equal to any rubbing and polishing varnish. With this material there is no more cloudy, milky, flat finish before rubbing, nor that blue haze after rubbing.

Usually a sheen is selected that will match the desired result obtained, when rubbing the tops of cases, either with oil and pumice, or with any of the various grades of wet and dry abrasives. By careful sheen selection, combined with the absolute freedom of orange peel, it is seldom found necessary to rub the entire case.

Summary of Results

Marked improvement in finish is very apparent. We get better depth of color with water stain; and improved adhesion with varnish sealer; and finally a clear transparent top coat—a full deep finish that will not sink in. It is waterproof, mar-proof and liquor proof. One sealer coat and one finish coat are all that are required to successfully and consistently produce these results.

Industrial Paging System

A new 2-way communication system, permiting paging messages to be originated from any station and broadcast to all stations, with the added feature of private, two-way telephone-type conversation between any two or more points, has recently be launched by Executone, Inc., 415 Lexington Ave., New York, N. Y. This system, which accommodates from 2 to 70 stations, is ideal for roaming executives who must locate and converse with key-men in various parts of the plant. The company will furnish literature on request.

Aircraft Finishing on a Conveyor

ONE of the western aircraft factories has installed an overhead trolley conveyor to facilitate the drying of fabric-covered parts which they are so busily engaged in manufacturing for certain U. S. Army planes.

In the final process of manufacture, the seams of these parts are taped and the cloth surfaces are

Aircraft parts move along by conveyor while drying and during final inspection.

given several coats of dope to produce added strength and tautness.

Each coat of dope requires time for drying, and as the parts are bulky, their handling and storage during drying periods presented a major problem. Added to this problem was the fact that the fumes arising during the doping process are highly inflammable and must be confined in a specially constructed fireproof room which is shut off from the other manufacturing departments of the plant.

Work station and conveyor for handling and storing fabric-covered aircraft parts.

The problem was solved satisfactorily by the installation of an overhead chain conveyor. This conveyor serves not only as a mechanical handling medium but also as a slow-moving storage rack during the drying periods.

The conveyor follows a winding path about the room, carrying the parts from one work station to the next, with the work stations so spaced and the conveyor speed so adjusted that correct drying time is obtained after each process.

Special hangers were designed for each style of part, so that no part suspended from the conveyor can come in contact with another part during the drying process. The conveyor also permits final inspection of all parts before they are removed.—*Link-Belt News.*

New fields of application for paints have been opened by the rapid growth in the use of luminous coatings which are now available.

SMOOTHING, RACKING, COATING AND DRYING

Brush Handles; Turnings

BY I. C. BRADLEY, JR.
President, C. E. Bradley Laboratories, Inc.

I have your letter of March 10th. I do not consider myself capable of writing such an article as you ask for; however, I am only too glad to give you the following information which is based on our work here.—

I. C. Bradley Jr.

PRIMARILY, we are woodworkers. Our line consists mainly of paint brush handles, penholders, and small turnings such as are used on kitchen tools, screwdriver handles, etc. We manufacture between four and five million handles per month, all of which are finished by the dipping process.

About 15 years ago, we experienced some difficulty in obtaining satisfactory finishing materials. This prompted us to direct considerable attention to the problem of selecting, testing and applying durable protective and decorative coating to our wood products. This has proved to be an excellent invest-

Dipping tanks wherein wood articles, racked in multiple, are dipped into tanks of lacquer.

View of part of tumbling room where turnings are tumbled with a special filler.

ment. Our wood-finishing department now uses approximately 200 gallons of lacquer per day.

I will attempt to give you a little resume of our finishing methods. First, our lumber is kiln-dried until the moisture content is between 6% and 7%. The handles are then turned, after which they are well sanded so that a very smooth surface is obtained to start with. They are then tumbled with a special material which we manufacture. This fills in the pores of the wood and, at the same time, smooths the surfaces, making them ready for dipping.

Our Dip Finishing Improved

Until a few years ago, it was necessary for us to dip two or three coats of lacquer on the handles in order to obtain the proper finish; however, by increasing the percentage of solids in our lacquers, we have been able to reduce

the number of coats to one of color and one of clear. Careful testing from time to time indicates that we get about 228-sq.ft. of surface coverage to a gallon of lacquer. In our line this means about 3000, 2-in. varnish brush handles per gallon.

In the dipping process, we use a heavy-bodied lacquer on a machine of our own design and make. The handles are withdrawn from the lacquer at a slow rate of speed. They are allowed to dry approximately three to four hours. When the first (color) coat is dry, the process is repeated, except that we use clear lacquer to protect the color coat. This clear coat also gives the color finish its desirable gloss.

Freshly lacquered paint brush handles are drying while stuck on pin boards which now rest in portable multiple-deck racks.

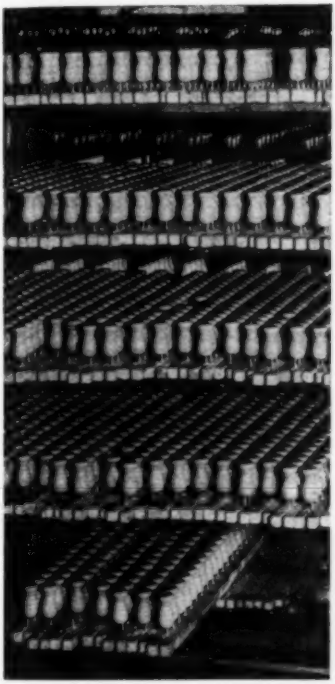
We have machines for removing the handles from the pin boards, which eliminates a great deal of hand work. After the dipping process, the handles require overnight drying. Next day they are ready for packing.

Due to the fact that our finishes are used mostly for paint brush handles, it is necessary that we use lacquers which are very flexible; and yet the finish must be hard, as many of our handle customers keep large quantities of merchandise in stock for some time; and, when the handles are assembled into the brushes, often a cold die stamp is used which would crack the lacquer film unless it is flexible enough to take the stamp.

Substitutes Developed; Air-Conditioned Finish Room

I might add here that, like everyone else, we have experienced some difficulty in obtaining certain raw materials. However, I am happy to say that we have been fortunate in being able to develop substitutes which, in many cases, have given us better results than we were getting previously; particularly, as to mileage, toughness and film.

About two years ago, we were having considerable difficulty with blushing in our finishing department. Accordingly, we installed air-conditioning equipment which controls the humidity. We found that by using this equipment, and keeping our doors and windows



Rows of wood turnings stuck on pin boards that have been used to dip them in lacquer. They are in racks while the coating dries.

closed, we have been able to eliminate blushing, even during the worst atmospheric conditions. At the same time, we have been able to reduce our cost, since the lower-priced solvents can be used with this equipment.

AUTHOR'S NOTE — I hope that some of the above information will be of interest to you; and that perhaps it can be shaped into something that can be used for your magazine. I will be glad to supply any further information desired.

Portable Machines Useful for Smoothing Metal

THE PRACTICAL value of portable abrasive equipment is well illustrated by the experiences of the Armstrong-Blum Mfg. Co. of Chicago, which uses disc sanders extensively, and that of the Baldwin Brass Works, also of Chicago, which employs belt sanders as an aid to the preparation of metal surfaces for protective coatings.

Although in these two plants the portable tools are used for smoothing only metal surfaces, they are equally applicable for use on wood and other materials, such as plastics. They are available in various models and sizes, but all are light in weight and easy to handle. They may be fitted with a great variety of discs or belts suitable for many different kinds of surfaces and fin-

Smoothing metal covered doors with an electric portable belt sander.

ishes. This makes them versatile as to application, so that their use in a given plant need not be confined to just one or two operations. They may be employed wherever and whenever such equipment is advantageous, to an extent largely determined by the ingenuity of the user.

The Armstrong-Blum Mfg. Co., makers of "Marvel" hack saw machines, employs disc machines for smoothing castings in preparation for painting. By attaching a cup grinding wheel the portable machine can be used to smooth down all rough projections including welding beads, as shown in one of the illustrations. This heavy-duty machine has a no-load speed of 5000-r.p.m., which is the recommended speed for 6-in. cup wheels, and is designed especially for high speed production work.

Using a portable disc grinder to do all of the preliminary smoothing on castings.

One of the 2-speed disc sanders has speeds of 2700-r.p.m., for 9-in. discs, and 4200-r.p.m. for 7-in. discs. Another type of disc sander takes a 7-in. disc. for operation at 4200-r.p.m., and has a second speed of 1300-r.p.m. to permit buffing and polishing with a lamb's wool bonnet.

The Baldwin Brass Works has had success in using a standard portable belt sander with a reduced belt speed for finishing high-grade bronze elevator doors. This special belt speed, 700 surface feet per minute, enables the operator to do a remarkably smooth job on the doors, practically eliminating all scratching or marring of the metal. The work was formerly done by hand. Naturally, machine operation has greatly speeded up production. In other words the portable unit saves time and money in doing this kind of work, where a satin-smooth, scratchless surface is required.

The belt-sander weighs slightly more than 13-lbs., is easy to handle and move from place to place, and is so well balanced that an even pressure on the entire sanding surface is easily possible. The design is such that belt changes can be made quickly. An interchangeable knob handle can be moved from the top to the nose of the sander for ease in vertical sanding. The width of the belt is 3-in.

An important feature of one type of portable belt sander is the provision for a vacuum dust-collecting

system. This allows the sander to be used in the same room, and at the same time, in which painting is being done. This feature greatly simplifies sanding operations. — F. A. WESTBROOK.

Photographs for illustrations in this article, supplied by Skilsaw, Inc., Chicago, Ill.

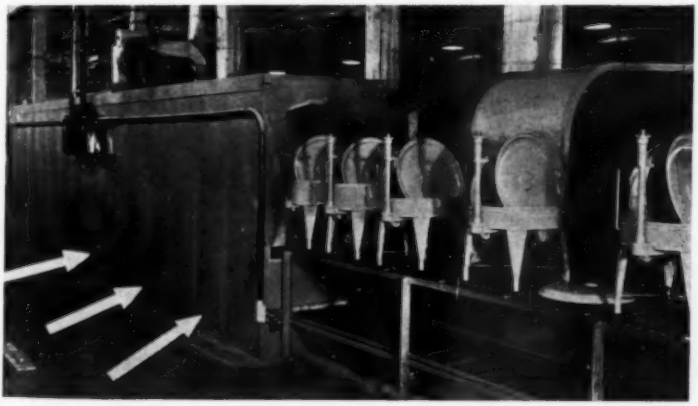
Electric Heat Bakes Paint Coating

BEFORE washing machine manufacturing was stopped and changed over to war products, the superintendent of one factory changed his paint oven from heating by steam to heating by electricity.

He designed and built the conveyor-type oven shown in the accompanying photograph. It is 46-ft. long by 3-ft. 4-in. wide and 6-ft. 8-in. high with a 3-in. insulation jacket. It is heated by 150-kw. of electric strip heaters installed on removable angle-iron frames across the bottom of the oven.

The heaters are connected to a 3-phase, 4-wire, 208-volt power supply. Operating temperature is 300° F., and it is reached within 35 minutes, from a room temperature of 72° F. Oven temperature is regulated by an indicating-type thermostat and is maintained within 3° F., plus or minus, under full load, which was approximately 240 washers per 8-hour day. Forced air circulation gives 20 complete air changes per hour, with provision for 50% recirculation.

As indicated by the photograph, the paint-sprayed washers are placed upon the conveyor and moved slowly through the oven. When they emerge, the paint is correctly baked and, because of the unvarying operating temperature, the finish on all washers is identical. The same outfit can be used for baking the protective coatings on various war products.—*Chromolax News.*



The entrance to this new electrically-heated conveyor oven is close to a spray booth.

METAL CLEANING AND PAINTING OPERATIONS ON NEW

Trucks and Busses

BY M. R. BENNETT

TO BETTER understand this article, the following information must be kept in mind. The finishing materials used in our various spray operations are controlled by one man. This man mixes the paint materials and sees to it that all materials are kept to proper viscosity. He also checks the material for color, which is important to us, since the various items are sprayed at different times and assembled later. It can be readily understood that if some of the received paint were not checked closely upon arrival, we would run into serious trouble later. All of our parts, regardless of their size, are primed before assembly. The assemblies then receive two coats of finishing material.

Two Metal Cleaning Methods Are Used

We use two methods for cleaning our metal surfaces—the vapor tank and alkali wash. Everyone who reads this magazine is more or less familiar with the vapor type of cleaning. The vapor is produced by a low-boiling chemical. This chemical is heated by a steam coil and, as it reaches its boiling point, a dense heavy vapor is released. This vapor is prevented from overflowing the tank by a cold water coil which circles the interior near the top edge of the tank. The items to be cleaned are submerged in the vapor and allowed to remain there from 30 seconds to several minutes.

Treated articles are then removed and allowed to drain for a minute or two, after which they are wiped with a clean dry cloth and tacked off (wiped with a tack rag) before spraying.

The alkali washer is fed by a supply conveyor which starts at our receiving platform. Here is where all of our purchased metal is hung on. The overhead conveyor then passes through the sheet metal department where our own manufactured products are put on. The total length of this conveyor is more than a quarter of a mile. I might add that, for a safety feature, we have heavy wire screen shielding underside and sides of the conveyor in such a way as to eliminate the possibility of anything falling off and hurting anyone. The conveyor is driven through a variable-speed transmission, therefore we can easily adjust the speed to suit the various items entering and passing through the paint shop.

Alkali Cleaning Equipment

Our alkali cleaning consists of three 500-gallon tanks completely enclosed and separated by long drain-boards. The cleaning solution in the tanks is heated by individual

Has the War handed you a new finishing problem?

Your problem may result from new products you are producing for the war effort . . . Or it may be the result of restrictions on the type of finish you have been using for your normal production.

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steam coils which are thermostatically controlled to hold the temperature at 186° F. Washing and rinsing solutions are forced through multiple nozzles placed at different angles to insure perfect washing, regardless of the shape or size of the parts and products going through.

The steam that comes from the heated solution is prevented from billowing out into the plant by the following method: There is an air curtain sealing the entrance to the washer. Then, over the first tank, a 14-in. suction fan and exhaust stack takes care of the steam in that section. A hood over the second tank is equipped with a 20-in. exhaust pipe. This, plus the pressure of an additional air curtain at the exit, beyond the third tank, takes care of the steam from the last two tanks.

The first tank contains a 3% alkali solution. After being washed in this solution the articles drain and then proceed to the second tank where they are rinsed with clean hot water. After draining again the work is carried to the final rinse, to which a rust inhibitor has been added. This final dip checks and prevents any rust action on the parts.

Sheet-metal parts are moved into an oven wherein a temperature of 250° F. is maintained. As the articles leave the oven, a man "blows out" all crevices, seams, etc., with a high-pressure air nozzle. This man also inspects and tack-rags the surfaces before the work goes into the prime booth.

A solid coat of synthetic type primer is sprayed on. The work then moves into and through an overhead oven where it is baked for one hour at 250° F. Next it is sanded with No. 320 sandpaper.

I might mention that we do considerable machine sanding in conjunction with hand sanding. In case the primer is sanded through to the metal, the surface is spot primed and resanded in preparation for the finish coat.

Some pieces, due to imperfections in the metal, are surfaced. The surfacer is also a synthetic material which, after baking, is water-sanded with No. 320 sandpaper. Whenever surfacer is necessary, it is sprayed on in two wet coats, one coat following the other. The second coat is applied after the first coat is completely set up. The surfacer is baked for 1½ hours at 150° F.

When the articles are ready for the finish coat, they are hung to an overhead conveyor which transfers them to the finish-coat spray booth. The surfaces are "tacked off" to remove any dirt or lint. Then two coats of synthetic enamel are applied. The enamel is baked for one hour at 250° F. Upon leaving this last oven, the articles are transferred to another conveyor which carries them to the various assembly stations.

A word here about our finishing room: We try to keep it as clean as possible. Our booths are of the down-draft type. The interior of our spray room is kept at a higher pressure than the adjoining rooms, therefore no dust or lint particles fly into the room to get on the surfaces being sprayed.

Chassis and Cab Finishing

Our chassis painting is a comparatively simple operation. After all sub-assemblies are on the chassis frame, it moves on to one of the chassis spray booths where all bare metal spots are touched up with primer. After this prime coat is dry the chassis moves on to the

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finish booth where two coats of finishing material are sprayed on. The chassis are then moved into and through a tunnel-type oven where the chassis paint is baked for one hour.

As for our cabs, after they are assembled the sheet-metal men go over them and make sure that all dents are taken out. This work is done mostly with power-driven portable disc sanders. Cab interiors are then sprayed with a sound-deadening material—a heavy paste that requires the use of a special spray gun to properly apply it.

The exterior of the cab is sanded with No. 240 sandpaper. Then the cab is sprayed with primer. After drying, it is sprayed with two coats of surfacer which is water-sanded with No. 320 abrasive paper. Cabs are then given a final pre-finishing inspection and all minor metal imperfections are filled. (In some places this is called glazing.)

The filling (or glazing) is done either with a 1-in. to 4-in. putty knife, or a piece of celluloid. The filled spots are also water-sanded, when they become dry. The cab is then "blown out" with compressed air to make sure that no water, from the wet sanding operation, remains in crevices or corners around moldings, hinges, etc. The cab is then tacked off, after which two coats of synthetic enamel are applied, followed by a trip through a tunnel oven to bake the final coatings.

Bus Finishing

On bus jobs the skeleton frame work is what we start on. The frame is welded into position and then hand cleaned. Two synthetic primer coats are applied and allowed to air dry. The body sheets (which were formerly of aluminum) are then riveted into place.

After assembly, the metal sheets are wire brushed with a power tool. This operation not only cleans the metal but it gives the smooth surfaces a wire-brushed effect which insures good paint adhesion. A special primer, developed especially for this work, is sprayed on. This primer is baked for 2½ hours at 180° F. This primer can be baked for only 1½ hours. However, our schedule allows us a 2½-hour period and we give the primer that extra hour to insure a thorough bake. The baked primer is lightly sanded with No. 320 sandpaper, this sanding being done on the interior as well as the exterior of the bus.

Air-drying materials are generally used on the interior surfaces of busses, and it is customary to have a 2-tone color scheme. First the ceiling is sprayed. When it is dry, it is masked and a contrasting or harmonizing color is sprayed on the remainder of the interior. We spray on two coats of each color, allowing about ½-hour between coats.

The next operation is the chassis spraying. For this the bus moves over a pit from which two sprayers apply two coats of chassis paint. Formerly this consisted of an aluminum paint. The interior of the bus is then masked and all openings are sealed with wrapping paper and masking tape. Two double coats of surfacer are sprayed on. After drying, the surfacer is water-sanded. Then the entire bus body is carefully examined for dents or rough spots. If any rough spots or dents are located they are immediately filled with a synthetic filler. Care must be taken in this operation to smooth out the filling compound; otherwise the sanding, which necessarily follows the filler, will either not smooth the surface

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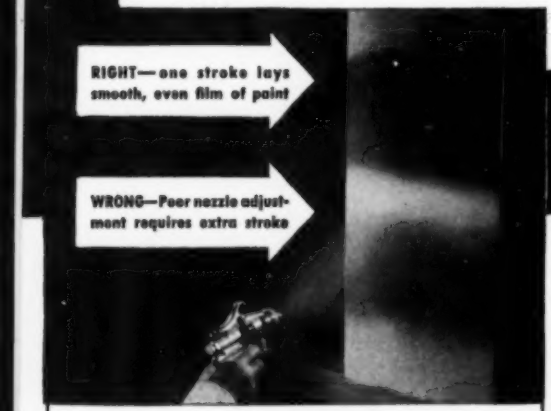
1. WATCH ADJUSTMENT OF GUN TO SAVE MATERIALS

▸ Today's war production crisis demands conservation and requires maximum efficiency from the spray gun itself . . . as well as from operator. By correct adjustments the spray operator can make considerable savings in the use of vital finishing materials. For example . . .



2. LOOK AT THE SAVINGS HERE...

▸ Every stroke uses up *time* and *materials.* So an improperly adjusted spray gun which causes extra strokes can cost you money. It may *double* your costs for materials . . . in addition to using more labor time.

3. INSPECTION OF

(TO SAVE MATERIA

▸ Defective spray patterns which was cause streaks in the finish a often due paint in the spray head or cap. Reg and proper adjustment— you *mat*

CHECK THESE 11 POINTS TO SAVE MATERIALS

NEXT MONTH READ ABOUT

1. Temperature of paint
2. Viscosity of paint
3. Air and fluid pressures
4. Adjustment of spray gun
5. Handling of spray gun
6. Triggering of the gun
7. System in the strokes
8. Uniformity of coating
9. Thickness of film
10. Causes of rejects
11. Touch-up procedure

● The Du Pont Man can show you how to control these factors... can aid you in conserving finishing materials and lowering painting costs. And remember—he's backed by a vast chemical organization with the finest of facilities for developing, making and applying better industrial finishes. When the Du Pont Man calls on you—call on him for help. E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington, Del.

Look for a detailed discussion of each point in this regular monthly series.

ECTION OF ARMS

AVE MATERIALS)

atterns which waste materials and finish often due to dirt or dried ad or cap. Regular cleaning— ent— you *material* and *money.*

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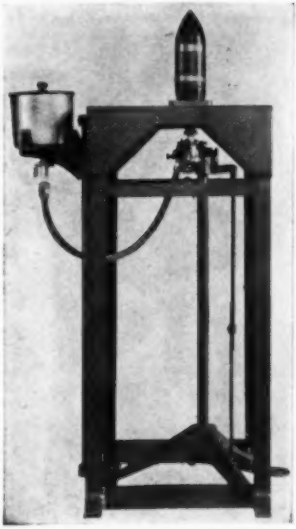

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or it will probably ruin the repaired surface and bring you back to where you started.

Masking to Separate Colors

The bus is now ready for striping of the exterior molding. The desired color of the strip is sprayed on the molding, clear around the bus. Upon drying, this stripe is carefully covered with masking tape.

Most buses are multiple-color jobs so the next operation is the first step in the work of finish spraying. The upper portion is first sprayed with the desired color. Upon drying, the over-mist or carry-over from the spraying is water-sanded. The upper section is then masked off and the lower half of the body is sprayed. Both of these spraying operations consist of two coats, the interval of time between coats being about ½ hour.

The bus is now ready for the streamlining decorative effect. The streamline pattern is cut from heavy wrapping paper. This is held in the desired position and dusted around the edges with a pounce containing powdered chalk. This line serves as a guide for the masking and spraying operations that follow.

The exterior of the bus, up to the roof line, is completely masked. This is done to protect the finished sides and ends from the roof spraying work, which is done next. Many bus roofs are finished in aluminum. After the aluminum is sprayed and allowed to dry, two coats of clear synthetic varnish are sprayed over the aluminum for weather protection. After all masking is removed, the bus is ready for its final lettering or the application of decals.

Painted in bright decorative colors, this lacquered maple porch chair was shown at the American Furniture Mart in Chicago. The maple lamp base and ash stand have a Chinese modern appearance.

Sentry Shelters

Bridges, vital industrial plants and airplane landing fields are being protected from saboteurs by more than high fences and alarm systems. Vigilant armed guards tighten the circle of defense. Because guards must be on duty day and night in all kinds of weather, many companies, railroads and agencies are erecting weather-tight shelters at gates and other vulnerable points.

Near St. Louis, Missouri, a number of Armco Steelox sentry boxes are being built for guards patrolling Mississippi River bridges. In half a day two unskilled men can erect one of these rugged shelters, made of galvanized 20-gage Armco Paintgrip steel panels. Even when unpainted, the channel-type panels resist weather and are dull and unreflecting—similar in color to camouflage gray. They may be painted immediately after construction however.

Armco Railroad Sales Company, Incorporated, has designed the seven-foot high structures in two sizes: 8 by 10 and 6 by 8 feet. A three-foot overhanging canopy completes the shelter. Full salvage value can be realized after the emergency because the shelters are of standard construction. They may be dismantled and moved to other sites, or combined and extended to form larger buildings.

How to Use Water Stains

BY FERD ROSEN

WATER stain powders should always be dissolved in hot water and allowed to stand from 30 minutes to one hour before being used, in order to get their full strength of color.

The average formula for water stains is about 4-oz. of stain powder to one gallon of hot water, but it may be necessary to vary this formula according to the color desired — either by increasing the amount of stain powder to 5-oz. or 6-oz. per gallon of water, in order to get a darker or stronger color, or by using less than 4-oz. to get a lighter shade.

What You Must Consider to Match Colors Accurately

The hardness of the wood must also be considered in the staining and the final color strength. For instance, birch, maple and oak call for a stronger stain to get a certain shade. On account of the hardness of these woods, the stain will not penetrate as deeply or rapidly as it does on softer woods such as gum, mahogany, etc. Walnut and mahogany will require a much weaker stain formula because the wood itself has some natural color in it.

In other words, if walnut and birch were to be finished in the same color, it would be necessary to use about double the amount of stain powder per gallon of water on the birch wood. For example, if 2-oz. of stain powder per gallon is needed to get a certain shade on walnut wood, it will require at least from 4-oz. to 5-oz. or even 6-oz. per gallon on birch, in order to match the shade on walnut wood which was stained with the weaker solution. This same procedure is also necessary where mahogany and birch or maple are to be matched to the same color.

One other factor to be considered is that the filler on open-pore woods, such as mahogany, walnut, oak and elm, will add some coloring to same, whereas the close-grained woods, such as birch, maple and gum, do not require filling, and must be stained with stronger stain.

Clean Surfaces Necessary; Use of a Sealer Coat

All wood surfaces to be stained with water stain must be free from grease, oil or glue spots before the stain is applied. Otherwise these spots will not take the stain and will remain light. Oil spots can be removed with cleaners' naphtha and abrasive paper. Glue spots can be washed with hot water or scraped off with a steel scraper.

In order to build up a good finish over water-stained wood of the open-grain or open-pore type, such as mahogany, walnut, or others that require filling, it is best to

The

PHOTOGRAPHER'S MODEL

Photographers who employ models for art studies and commercial illustrations select women who know how to be beautiful . . . who maintain graceful figures . . . who know the art of make-up. These young women know the value of a beautiful finish . . . and it sells the photographer on their fitness as professional models.

We know the value of makeup as applied to commercial products . . . and how to finish products in a way that they too will be selected by buyers because of their outstanding beauty and smartness. Send us a sample of your product for a studio analysis and we will create a protective finish with that "extra something" that makes sales. Write for details.

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apply a very thin coat of pure shellac (or other suitable sealer) before filling. Allow about five or six hours drying time for this shellac coat, and then sand the surface smooth before filling same.

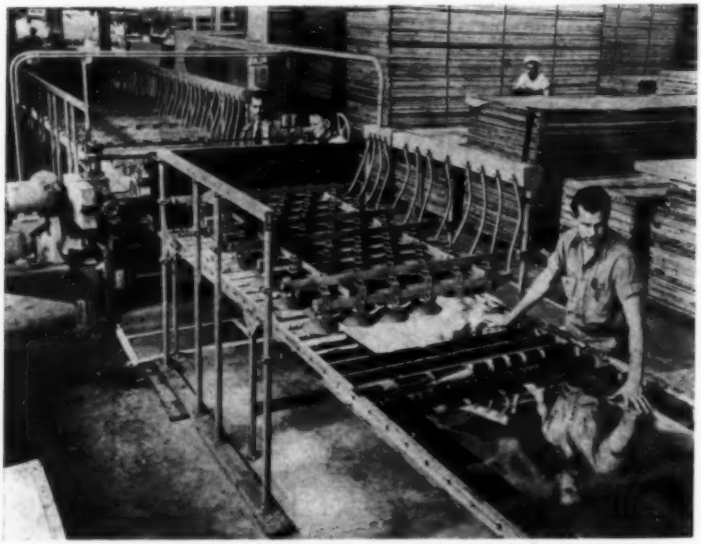
The shellac or sealer coat should always be very thin. A mixture of one part 4-lb.-cut shellac to six parts of alcohol is about right. After a careful sanding of this thin coat of shellac or sealer, the surface will be ready for filling—and after the filler has dried overnight, the complete finishing coats can be applied.

This thin coat of shellac or sealer would not be necessary on close-grained woods that do not require filling, but it can be used on these woods as a sealer under varnish.

Water stains are made of wood dyes, and are much more satisfactory from a standpoint of permanency and durability than any other stains or colors.

Machine Maintenance With Metallizing

16-page Bulletin 42A, just published by Metallizing Engineering Co., Inc., Long Island City, N. Y., describes the metallizing process and equipment for its application. It tells briefly how essential industries are eliminating replacements, and increasing service-life of equipment now difficult to replace, by building up worn diameters with any desired wear, and corrosion-resistant sprayed metal. Also, it reveals how metallizing is used to rapidly salvage mismachined parts and defective castings in production. Examples are given to show how metallized "inserts" and coatings are helping firms conserve vital metals.



Baking the coating of zinc-chromate primer on alclad aluminum sheets which are to be formed into fuselage and other 'plane parts, in a western aircraft factory. The baking time is about 30 seconds, depending on gauge of metal. Infra-red lights are used, with gold-plated reflectors, using 72-kw. Photograph courtesy Fostoria Pressed Steel Corp.

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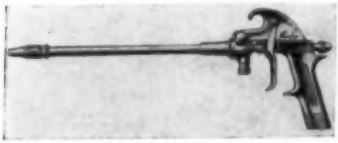
Spray Cleaning Fluid

The Binks No. R3-EC cleaning gun has proved very popular for spraying various kerosene-type cleaning fluids made by the major oil companies un-



The long "barrel" enables the nozzle to reach places that otherwise would be almost inaccessible for cleaning.

der trade names such as "Varsol", "Stanosol", etc. It can be used to spray any kerosene-type cleaning fluid.

The gun is equipped with pistol grip, adjustable material control, adjustable nozzle, and ¼-in. standard pipe thread air connection. It uses approximately 4-cu.ft. of air per minute at 40 to 50-lbs. pressure. Can be used with quart syphon cup or with suction hose running into an open container. Net weight 1½-lbs.; shipping weight 3-lbs. A product of Binks Mfg. Co., 3114 Carroll Ave., Chicago.

Protective Coating for Windows

To prevent injury caused by flying pieces of glass broken by vibration, which are always responsible for the largest number of casualties during bombing raids, a transparent protective coating for windows has been developed by Maas & Waldstein Co., 438 Riverside Ave., Newark, N. J.

Window glass or plate glass treated with this new coating, which is known as "Glasshield," is in effect turned into safety glass. A coated pane may break as the result of vibration but it does not shatter, according to the manufacturer. It is also stated that the coating does not interfere with vision of light transmission through the glass.

Two coats of "Glasshield" on the inside surface of a window pane are

New . . .

MATERIALS SUPPLIES EQUIPMENT

effective, but, for maximum protection, the outside surface should be similarly treated, the manufacturer states. The coating is applied with a brush, allowing an hour for the first coat to dry before the second one is added. When no longer wanted, the coatings can be removed with a razor blade.

Combination Stain and Filler

Greater production speed has been constantly demanded by wood product manufacturers, and the use of lacquers has permitted greatly stepped-up schedules.

Inasmuch as it will undoubtedly become necessary to use varnishes instead of lacquers in the near future, due to the restrictions on raw materials, The Glidden Co., Cleveland, Ohio, has been working on speedier undercoat materials so that the same overall manufacturing time schedules could be maintained, even though varnish top coats were used.

The Glidden Co. now announces that Surfacene Combination Stain & Filler is being manufactured in any color to suit manufacturers' needs. Both staining and filling are done in one operation, with a drying time of 5 hours, as against two applications, two handling charges, and a 48-hour drying period when separate materials were used, as in the past.

Formerly combination stains and fillers always produced a muddy appearance, but Surfacene Combination Stain & Filler gives the same clarity and permanency of color as is obtained

MAHON *Built-for-the-Job* FINISHING EQUIPMENT

PUTS FINISHING OPERATIONS ON A *FAST*, PROFITABLE BASIS

This Mahon Oven—for the curing of rubber—was designed, built and installed by Mahon engineers. Every detail of its construction—from controls to interior conveyor equipment—was planned and built-for-the-job. Six months continuous operation has completely proved its efficiency and economy.

The greatly accelerated production schedules industry must meet today is putting a tremendous strain on production facilities. Outmoded and inadequate equipment cannot cope with this overload without the occurrence of serious delays and tie-ups. This is particularly true in FINISHING operations.

In practically every industry where FINISHING assumes a major factor in the production of war essentials, Mahon *built-for-the-job* Finishing Equipment plays an important role. Through constant research and development, Mahon engineers have kept abreast of industry's demands for more efficient equipment and more economical methods.

Today, the Mahon engineering staff, armed with years of experience, stands ready to serve you . . . no matter what your requirements may be . . . a Complete Finishing System or an individual unit thereof. These finishing experts will make a survey of your plant and, by actual tests on Mahon Finishing Equipment now in operation, will show you to what extent your production may be speeded up. Consultation places you under no obligation.

Manufacturers of

Metal Cleaning Machines, Rust Proofing Machines, Hydro-Filter Spray Booths, Ovens of All Types, Filtered Air Supply Units, Hydro-Flow Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems.

THE R. C. MAHON COMPANY • DETROIT • CHICAGO

MAHON

"...We must abandon every consideration except increa
production and increasing it every day..." DONALD M. N

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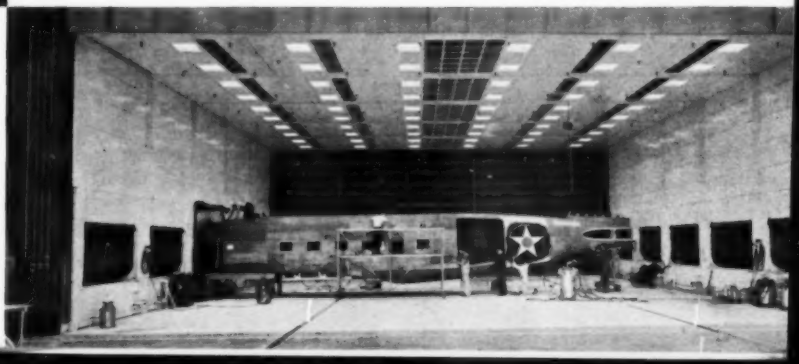
KEEPING FINISHING AHEAD OF FASTER PRODUCTION

There are new spray painting techniques and equipment to keep finishing departments abreast of the whirlwind speeds being developed in America's great war industries. New products, made by new methods, are getting new finishes at speeds that were never heard of before the war. Both manual and automatic finishing has been stepped up to the vast scale of war production. As in peacetime, Binks Engineers have been prominent in these wartime developments. They have developed special equipment for finishing shells, bombs, tanks, jeeps and the vast amount of other equipment needed to win the war. The large manual finishing department shown above and the giant water wash spray booth shown below were both designed and equipped by Binks for one of the largest aircraft manufacturers in the country. There is a Binks Engineer in your territory now. He will be glad to show you how to keep your finishing abreast of new production speeds.



We Have Enlisted for VICTORY!

We, in common with thousands of manufacturers throughout the land, have enlisted for the duration and ...— victory!

This means we are devoting a great deal of our time and our resources to the production of finishes for shells, machines, tanks and a host of other products so vitally needed by our armed forces for the successful completion of the gigantic struggle now in progress.

It does not mean that, because of our defense program, we are making no effort to serve that portion of our trade engaged in so-called non-essential manufacturing. Naturally, however, defense production comes first. We must wage an all-out fight to keep 'em rolling!

This makes for substitutions and shortages in many items normally plentiful. If, as a result, you experience delays or other inconveniences, please be patient and try to remember we are doing our best . . . Our best for the cause and our best for you.

A spirit of mutual understanding and cooperation between buyer and seller in all lines today will go a long way toward lightening the burden for everyone.

THE EGYPTIAN LACQUER MANUFACTURING CO.

Rockefeller Center • New York, N. Y.

EGYPTIAN FINISHES

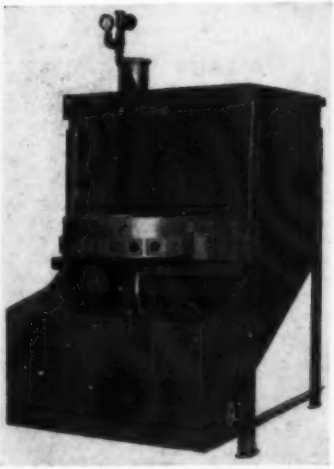
when water stain is used. This factor, combined with production time savings, and application and handling savings, makes the product most interesting to any woodworking establishment.

It has been pronounced by old-time practical wood finishers as being the most revolutionary change in staining and filling of wood that has been put on the market in many years.

Dry Cleaning Shells

The sandblast machine illustrated in this article is equipped with a rotary table on which the work is held. The table extends into the interior of the sandblast machine itself. While the outer edge of the table is being reloaded the inside edge is under the blasting nozzles which are doing their work inside.

The table is rotated by a motor that drives it at a prearranged and quickly changed rate of speed, so that all of the shells or shell parts being sandblasted receive the full impact and cleaning effect of the sand or other material used for cleaning purposes.

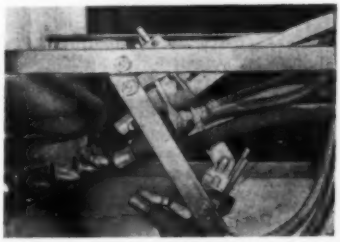


Sandblast nozzles operate inside the cabinet, on articles placed on the turntable.

Several nozzles can be adjusted to throw the sand in any direction desired, or they may be concentrated on one point. The actual sandblast operation is carried on, of course, inside the cabinet of the machine so that no abrasive or dust can get outside, or in any way affect the operator who works in the open.

A slotted, multiple rubber curtain prevents any blowing out of the abrasive or dust. At the same time a power suction blower (which may be in another location) draws the dust from the interior of the machine itself, thus preventing any tendency of the dust to blow out.

The machine may be equipped with two or more nozzles and they are set at the proper angles according to the work to be done. They concentrate over the surface of the work so as to sandblast each and every piece in every part. The nozzles are of the suction type; they draw the sand or abrasive from the bottom of the machine where it is contained in a receptacle. After the sand is blown through the nozzles onto the work, it quickly drops to the bottom of this hopper to be used over again. Thus we have a continuous flow of sand or abrasive which is used over and over again.



A view inside, showing position of the several adjustable sandblast nozzles.

The machine is well designed, entirely enclosed, and highly efficient in its work and is already being used in many defense plants.

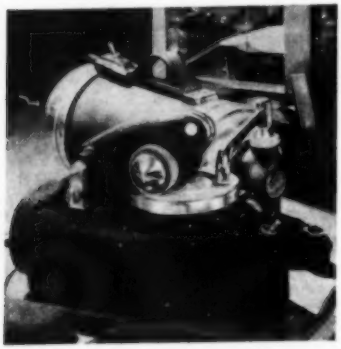
The machine is adaptable for a wide variety of work in addition to the cleaning of shells. In fact, any sort of an article, whether it is made of steel, glass, Bakelite or any other material, can be handled just as well by this machine, with very slight alteration. The machine can be made to produce any reasonable quantity of work and at any reasonable speed that may be desired.

This equipment occupies comparatively small floor space. It is a great producer of work and a great saver of labor . . . . manufactured by Leiman Bros., Inc., 120 Christie, Newark, N. J.

Abrasion Tester Improved

The Taber Instrument Corp., North Tonawanda, N. Y., announces its improved Abraser Vacuum Pickup, Model HV-42, an accessory to the Taber Abraser standard method for measuring resistance to abrasion of surface finishes.

The primary function of the Vacuum Pickup is to prevent accumulation of abradings from interfering with the normal wear action of the Calibrase wheels. Its principal application is for the removal of abradings that may become imbedded in the weave of textile fabrics, also the fine powder from certain types of organic coatings that tend to cling to and build up on the face of the Calibrase wheels.



The abraser with vacuum pickup attachment.

The Taber Vacuum Pickup is of tubular design for standing on the table alongside the Abraser and has a nozzle rotatively mounted on the suction end of the housing so as to swing in and out of position relative to the specimen holder. The nozzle holder can also be adjusted vertically to the proper height above the specimen by turning the knurled collar located on the stem. The contaminated air is drawn through the nozzle and connecting tube into the high speed centrifugal pump, then through a special filter bag which passes only clean air back into the room. The bag can be quickly and conveniently removed for emptying.

The motor is the high speed universal type designed for operation on any electrical circuit of 110 to 120 volts. The toggle switch for starting and stopping the motor is conveniently located at one end of lifting handle.

The Taber Abrasion Test Equipment and accessories are fully described in Bulletin 4012 which will be mailed upon request.

Alkali-Resistant Metal Paint

The Trautman Chemical Engineering Co., 1515 Coit Ave., East Cleveland, Ohio, has developed an alkali-resistant and mild-acid-resistant protective coating which serves as a suitable substitute for cadmium plating. It is called TRalex and is being made in four grades. TRalex GL-702 is an air dry, drying in 7 to 10 minutes; TRalex GV-703 is for either air dry or bake, and will stand baking at about 300° F. for 4 to 5 minutes, or 150 F. for 8 minutes; TRalex B-704° is strictly for bake, and at the above named temperatures; TRalex G-701 is made especially for those who want a material that is a good conductor of electricity, and is baked on, though it can be made for air drying.

TRalex will stand temperatures up to 350° F. for prolonged periods with-

Through rose colored glasses

Your customer likes your product. That's why she bought it. But remember that she will not look at it always through rose colored glasses.

When enthusiasm wanes . . . when the inevitable day of critical examination arrives . . . finish will be a highly important factor of satisfaction. And on that day will be determined the true customer acceptance of your product.

The right finish . . . a finish engineered to your specific needs . . . can insure lasting customer satisfaction. It can cut your finishing time, reduce your finishing costs and increase the salability of your product.

The right finish, in short, will make more money for you.

We can help you find the right finish for YOUR product . . . the finish that stands up after the rose colored glasses come off . . . the finish that pleases finishing foremen (who, quite correctly, never wear rose colored glasses anyway).

Your inquiry incurs no obligation. Address Department "E".

THE STANLEY CHEMICAL CO.

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A SUBSIDIARY OF THE STANLEY WORKS, NEW BRITAIN, CONN

out discolorations. It also presents a serviceable, washable surface for buildings, tanks, etc., and can be applied to brick. It is a suitable substitute for cadmium plating, and produces a coating which tests have shown to compare very favorably as to wearing and corrosion resisting properties. Coverage is about 800-sq. ft. per gallon.

In applying TRalex, care should be taken to have the surface free from oil, dirt, etc. This material is particularly adapted for coatings for metals, having an adhesiveness far superior to any ordinary type of paint; and it strongly resists alkalies and mild acids. Parts can be washed with boiling water or steam without any effect whatsoever on the coating, it being sufficiently flexible to expand and contract with the metal itself.

Direct Blackening for Copper

The Enthone Co., 442 Elm St., New Haven, Conn., has just announced the development of a new process called Ebonol "C" for simple, direct, low-temperature, chemical blackening of copper and copper alloys. The process involves immersion in a solution of blackening salts operated near the boiling point or from 200° to 212°F., and the blackening is accomplished in from 2 to 10 minutes, depending upon the alloy being blackened.

The process is stated to be suitable for blackening copper, beryllium copper, bronze, phosphor bronze, and brasses with the zinc contents of 35% or less. High brasses are colored a pleasing chocolate brown. The coating produced is, according to the manufacturer, unique in its properties. The coating is essentially cupric oxide, and being integral with the base metal, it cannot chip or flake. In addition to being jet black, the coating is hard enough to be buffed and does not have to be lacquered to prevent wear, as is the case with copper sulphide type finishes.

The company believes that the finish should be of considerable importance in the production of War Goods, such as optical equipment, airplane instruments, detectors, as well as for essential civilian use. It is suitable for parts that must withstand close dimensional tolerances, that will be handled to a large extent, for parts that must be deformed without the coating flaking, and wherever a jet black coating is required. An unusual feature is that the finish can be heated to almost dull red heat without flaking, and continuous exposure to temperatures as high as 700°F. will not harm the finish.

Non-copper alloys capable of being copper-plated can be readily blackened by first copper plating and then blackening the copper. Inasmuch as no electric current is involved in the blackening process, small parts can be blackened in baskets or in horizontal or oblique barrels, and large parts, of course, are blackened on racks or hooks, or stacked in baskets.

It is claimed that the overall cost of blackening is less than black nickel plating, or copper plating and sulfur oxidizing. The work is prepared for blackening by simple cleaning or bright dipping, and the solution can be contained in an ordinary steel tank heated with closed steam coils.

The company is prepared to blacken samples for anyone interested and to give advice on the blackening of all metals.

Tests on Fire Bombs

In an effort to remove the confusion regarding the effectiveness of carbon dioxide as an extinguishing agent for magnesium incendiary bombs, engineers of Walter Kidde & Co., Bloomfield, N. J., have announced results of comparative tests as to the efficiency of this inert gas or fire-bombs.

These tests, conducted in an enclosed space, show that total flooding with carbon dioxide not only reduces the burning time of the magnesium by one-third, but also tends to isolate the fire and prevent adjacent com-

During Blackouts

USE

DURAD

Luminous

PAINT

This new luminous paint makes any surface visible in the dark, indoors or outdoors. It renews itself after every exposure to daylight or artificial light.

One medium coat, or several thin coats, produces a yellowish, luminous finish for indoor use.

A special clear top coat, which gives a glossy finish, gives greater durability and is especially recommended for outdoor use.

Durad Luminous Paint must be used over a special primer supplied as part of the luminous paint system.

M&W MAAS AND WALDSTEIN CO. · NEWARK, N. J.

BRANCH OFFICES AND WAREHOUSES • 1659 CARROLL AVENUE, CHICAGO • 1228 W. PICO BOULEVARD, LOS ANGELES

bustibles from igniting. By comparison a water spray, properly applied, speeds up the burning of the bomb to one-tenth of its normal burning time.

Daniel Mapes, Vice President in charge of Engineering for the Kidde firm, interprets the tests as indicating that industrial plants protected with total-flooding carbon dioxide systems are already guarded against incendiary bomb fires. In cases where water would damage large quantities of materials, according to Mr. Mapes, the use of total flooding carbon dioxide systems is recommended. It is emphasized that carbon dioxide portable extinguishers are not suited for fighting magnesium bombs, since a portable extinguisher does not treat the surrounding materials to a sufficient degree.

New Metal Cleaner

The Cowles Detergent Co., 7016 Euclid Ave., Cleveland, Ohio, announces Lixol, a new solvent emulsion-type metal cleaner. This cleaner is suitable for use on all metals and leaves an invisible oil film ideal for painting or shop storage. Lixol produces physically clean surfaces, and can be used alone or diluted with water or kerosene. Descriptive booklets on this revolutionary new cleaner are available upon request.

"Nite-Glow" Paint

Nite-Glow, the luminous paint that glows in the dark, is formulated with the highest quality materials under direct supervision of experienced chemists. It is non-poisonous, non-radioactive and free of phosphorous.

Nite-Glow is heavily pigmented and should be stirred thoroughly. For best results, apply over a white undercoat. When used outside, the manufacturer recommends a coat of spar varnish over the luminous paint for additional protection.

Nite-Glow is visible for many hours after being activated by direct sunlight or strong artificial light.

The pigment used in this paint must be coarse to give the best luminous effect, therefore Nite-Glow cannot be made as smooth as non-luminous enamels. It should be kept away from fire, and adequate ventilation should be provided in the room where it is used. A product of Finishes Research, Box 26, River Grove, Ill.

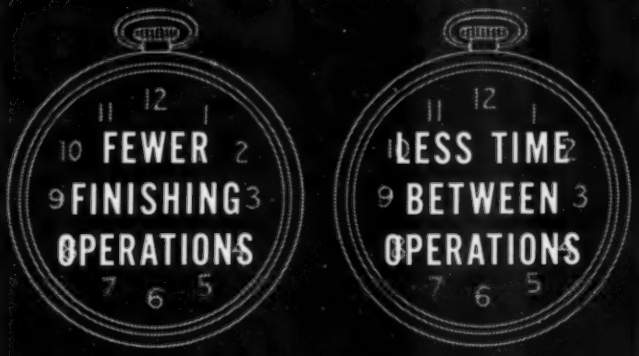
Coating Makes Glass Shatterproof

As protection against the deadly hazard of flying glass during air raids, a new coating for windows is now being offered by Douglas Distributors, Inc., 45 East 17th St., New York, N. Y. Investigation in England clearly showed that fully 90% of the civilian casualties caused by Nazi bombs were attributable to flying debris, particularly glass. The new coating developed by American chemists and known as Protex Shatter-Proof Blackout Coating No. 4, has the remarkable property of holding glass splinters together, even though the window may be shattered into thousands of fragments.

Bombing and shooting may crack the coated glass but splinters and pieces will not fly.

Unlike many blackout coatings, this new patented formulation, which is applied with a brush to the inside of windows, washes off easily with water and a cloth. It makes a window absolutely opaque for a period of a year or more under normal conditions. According to Douglas Distributors, Inc.,

Save Time 2 Ways...



with Berry Brothers Machine Tool Finishes

Even before the Japs sneaked up on Pearl Harbor, our laboratories were busy developing more efficient machine tool finishing systems. The major objective of our research was to set a new standard of quality and durability in machine tool finishes. These improved finishes are now available in a complete line of synthetics and lacquers. Save time two ways with Berry Brothers Finishes—fewer operations—less time between operations. Write for interesting case histories on applications now in operation.

Quality Finishes Since 1858

BERRY BROTHERS

Industrial Varnishes • Enamels • Lacquers

DETROIT, MICHIGAN • WALKERVILLE, ONTARIO

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great interest is being shown in this Protex Coating by defense industries, office buildings, schools and factories of all types.

An outside blackout coating, another product of American laboratories, is also being offered by Douglas Distributors, Inc. This coating is sprayed or brushed on the outside of windows, forming a dense, flat black finish which is impervious to all weather conditions. Approved by the National Bureau of Standards and the O. C. D., this outside coating dries in half an hour, avoids all danger of reflection, yet can be readily removed at any time with kerosene and a cloth. Known as Protex-Rowe No. 200 Outside Blackout Coating, this improved coating will not cause windows to crack or split under the heat of the sun's rays, thus overcoming one of the major difficulties experienced by defense plants with similar products.

Crystal Lacquer

Randolph Finishing Products Co., Carlstadt, N. J., has developed a new crystal lacquer which is said to be an improvement over the company's former crystal lacquer. Quoting from the company's news release:

"Exhaustive tests have shown this new product, made from non-strategic materials, to be better than the original . . . for many years made from a standard formula.

"Withdrawal of strategic materials from civilian lacquers and enamels forced intense laboratory work to develop substitutes to keep important but non-vital trade supplied. In several instances this has resulted in the discovery of better products."

Sterling Insulating Varnish

The Sterling Varnish Co., 141 Ohio River Blvd., Haysville, Pa., has recently developed a new insulating varnish, designated as S-110, for application to electrical apparatus that must operate at abnormally high temperatures. Tests have indicated that S-110 will stand operating temperatures at 482°F. or higher.

When baked at 350° to 395°F., it dries all the way through the deepest winding and does not resoften when exposed to high operating temperatures. The dried film is mechanically

Dipping armatures into insulating varnish.

strong, exceptionally adhesive and flexible, and retains these characteristics under adverse heat conditions.

The experience of one motor manufacturer confirms the unusual operating efficiency of Sterling S-110 insulating varnish at abnormally high temperatures.

A machine had been wound with glass covered wire and insulated with glass and mica, after which it was treated with two coats of S-110. The machine was then run to destruction. Upon investigation, the insulation varnish was found to be in excellent condition and the stator showed no signs whatever of breakdown even though the rotor bars had loosened due to the brazing having melted away. The

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On any Hilo Protective Coating for the above you may have a notarized certificate guaranteeing that the particular material meets the required specification.

Send for method of application and quotations.

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Boston, Mass.

Established 1863

brazing material in question melts at 1290° to 1580°F. The insulation test on the stator was perfect and when a new rotor was put into the machine, and fresh grease in the bearings, the motor started up without any trouble whatsoever.

Vacuum Cleaner

The new Tornado Model 117 Hi-cycle vacuum cleaner, announced by Breuer Electric Mfg. Co., 5100 N. Ravenswood Ave., Chicago, Ill., is light weight, portable and has the added feature of high-speed operation and durability. It is especially suited for continuous, heavy-duty cleaning. The feature making this possible is that the unit does not use commutator or carbon brushes, thus permitting continuous operation.

The Hy-cycle motor is made to operate on 230-volt, 180-cycle current only. Unit is equipped with 20-ft. of 4-conductor cable but without a socket or attachment plug. It is built to meet the need of a low-cost, portable, powerful vacuum cleaning unit for production-line cleaning.

Useful for keeping the factory clean.

Makes pH Tests

Your pH tests (for degree of acidity or alkalinity of solutions) can now be made by a very simple technique using the new Cargille Buffer Set No. 1 with Hydrion wide-range pH test paper.

Solutions of known pH, made by dissolving the tablets in this set, are applied to the test paper to bring out on the paper the color for any half unit from pH 3 to pH 11. The colors are used for reference to judge the pH of the sample being tested; comparisons made with these reference colors are more accurate than those made with color charts. Readings can be made to one-half pH unit.

Designed for control tests in the plant by unskilled workmen; also for quick, preliminary tests in laboratories where more elaborate pH apparatus is available.

Metal Lead Primer Replaces Aluminum

Here is welcome news to manufacturers, fabricators, construction or contracting companies who, as users of aluminum paint, are affected by the government freezing order prohibiting the further manufacture or distribution of this well known protective coating. As an alternative to aluminum paint priming, The Midland Paint & Varnish Co., Cleveland, Ohio, offers manufacturers affected a metal lead primer which, because of its metallic, non-rusting components, is claimed to be equal in its protective value to that of a good grade of aluminum paint.

The manufacturer claims that Hyspar Metal Lead Primer is rust inhibiting, preventing rust from working from the inside of the material through the finishing coat. It may be brushed, sprayed or dipped, and dries hard in 4 to 5 hours.

Since Hyspar Metal Lead Primer is neutral gray in color, it will not bleed through the finishing coat, or need more than the usual finishing coat required when aluminum was used.

Now we're ready with the answers to your conversion problems

We knew that the necessity for conserving critical materials would bring in its train a multitude of problems. So we got busy. The result is a complete line of finishes developed by our laboratories to meet practically every problem of conversion from Tin or Terne Plate to Black Plate.

Answer No. 1—INHIBIT-COTE

For instance: one of the most useful of these new products is INHIBIT-COTE, an organic coating of the oxidizing type which acts as a rust inhibitor and prevents under-film corrosion. INHIBIT-COTE can be applied at the mill economically. Black plate protected by INHIBIT-COTE arrives at the fabricator's not only *clean*, but ready for decoration without any additional primer coat or other preparation.

Write today for complete information and samples.

THE WATSON-STANDARD CO.
Manufacturers of
PAINTS . . . VARNISHES . . . INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

TOUGH JOB HEADQUARTERS
Rx Prescription Finishes
Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
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The manufacturer reports that this paint was originally prepared several years ago to meet the special problems of painted outdoor displays, and large neon spectaculars which, being subject to all kinds of weather, required a paint of unusual protective ability with high elasticity as a feature. It is said that this paint will not crack nor flake off and holds tight to metal under rapid climatic changes, and is also highly resistant to the salt impregnated air of the seaboards.

This paint can be obtained from the manufacturer in two forms—in large quantities already mixed for application, or in separator cans with the metal paste separate from the liquid to be mixed in the same way as required for good aluminum finish.

Skin-Protective Cream

"Man-O" is a bland skin-protective cream for active hands which serves as a guard against skin irritants. It is a product of the Sabern Products Co., 5511 Euclid Ave., Cleveland, Ohio.

The cream is easily applied. It is rubbed into the hand, over the portion of the arm exposed, around the finger joints, and under the nails, before the worker starts his shift. "Man-O" forms a film-like, invisible and flexible glove, protecting the skin from absorbing grease, cutting oils, paint, gasoline, and other materials difficult to clean off.

The manufacturer claims that "Man-O" can also be used effectively as a guard against occupational skin irritations. It washes off easily with soap and water, taking all dirt with it. The cream is packaged in 12-oz. cans, sufficient for about 100 applications, and is also available in bulk.

New Insulating Varnish

Especially developed to meet coil insulation requirements of generators, a new insulating varnish capable of withstanding high temperatures is announced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Known as Thermoset, the varnish is a synthetic resin type cured by heat-induced chemical polymerization. It sets to an infusable flexible inert film of clear amber color and is high in dielectric and bonding strengths.

Of low viscosity, the varnish will not skin over or gum up equipment with an insoluble film. It penetrates the deepest windings to completely fill interior voids. Water and oil-proof, Thermoset is not affected by acids or alkalis in ordinary concentrations. When cured, the material protects enamel coating on magnet wire, will not corrode uncoated metals, and guards against rust.

In applying Thermoset to a winding, the unit is soaked until bubbling ceases. The winding is then drained and baked at 275° to 300°F. until it is thoroughly cured. Baking time depends on the size of the unit; usually it ranges from 6 to 24 hours.

Wood Preservative Has Unusual Merits

Pine-Arid is a clear liquid southern pine product for waterproofing and priming exposed and semi-exposed wood surfaces, adding to lumber those properties which may have been removed and which Nature intended and provided to add life and prevent warping, rot and decay.

Regarding this material, the Southport Paint Co., Inc., Savannah, Ga., writes:

"Down in this section, as you probably know, we formerly had worlds of heart pine. Heart pine, as you are probably aware, is really the most amazing of all lumber. A heart pine pole can be immersed in mud and water for 20 or more years without deteriorating. It will weather for the same period. Termites don't attack it.

"I mention this to give you the background, for as heart pine became scarcer and scarcer, the demand for it naturally increased. Naturally we attacked the problem from a different angle—to try and restore what Nature put into heart pine that gave it these unusual qualities.

Absolute PRODUCTS

Manufactured to Meet

GOVERNMENT

SPECIFICATIONS

Years of experience in the formulation and manufacture of **"Absolute"** products for specific uses enables us to supply the Aviation Industry and other Defense Plants with their finishes and thinner requirements.

Samples and quotations will be sent upon receipt of your specifications and requirements.

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34-48 Industrial Street **New York, N. Y.**

Southern Factory—Winston-Salem, N. C.

LACQUERS — DOPES — SEALERS — SHELLAC THINNERS

SPEED UP ARMAMENT PRODUCTION

DESPATCH

FINISH BAKING OVENS

Speed up production, but get better finish-baking results and also save operating costs. Use a Despatch Oven. Many standard sizes available.

When a special type oven is needed, a Despatch engineer will "follow through" for you. 40 years experience back him up. *He* knows and has access to the right type of oven design for you. And he follows the Despatch tradition of fast efficient service and delivery.

WRITE TODAY for Bulletin 31. It has photos and diagrams of all types of material handling, and the facts about Despatch oven performance.

DESPATCH OVEN COMPANY

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Tung Oil Substitute

According to an announcement from New Wrinkle, Inc., 314 W. First St., Dayton, Ohio, adaptation of the new tung-oil substitute "Kellin" will facilitate the continued manufacture and use of wrinkle finishes for commercial and war purposes.

The adaptation of "Kellin" by New Wrinkle, Inc., now makes it both feasible and economically possible, for the first time, to produce a satisfactory commercial wrinkle finish from a linseed-oil base. This new formulation was developed and tested within two weeks, following announcement in the Wall Street Journal of "Kellin" by Spencer Kellogg & Sons, and in the face of years of varnish manufacturing practice and a general opinion in the paint industry that linseed oil was inferior to tung oil as a base for wrinkle finish. The new formula was developed by William A. Waldie, Technical Director of New Wrinkle, Inc., in its laboratory at Dayton, Ohio.

Detroit Rex Opens New Branch

In line with its recently expanded service policy in the metal cleaning industries, the Detroit Rex Products Co., announces the opening of a New England Branch office at 8 W. Main St., Meriden, Conn.

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NEW PERIOD

Enameling Cabinets

In the Question and Answer Department, a question was asked recently in regard to finishing wood kitchen cabinets. The company did not state what kind of plywood they were using. However, this has an important bearing on the correct finishing procedure.

They state that they are now applying four coats to their wood cabinets—two coats of sealer and two coats of enamel. This is not good painting practice, as enamel is strictly a finishing coat. Also, it is not good painting practice to apply an enamel on enamel, without considerable rubbing and dulling of the first enamel coat.

I would recommend that you fill your end pores with a water putty, of which there are many on the market. Or, you can make your own by mixing glue, water and whiting to a stiff paste, then rub this in and, when it is dry, sand the surface. Also, fill any other places that need it, and apply your coat of clear sealer. Sand this; then follow with an undercoater of whatever color you are using. Sand; apply a coat of half undercoater and half enamel, and sand lightly with very fine paper. Let the final coat be straight enamel. With this process of four coats, you should have a first-class job—one that will stand out attractively when placed in a home.—J. K. COOPER.

Lacquers and Their Rubbing Qualities

In April 1942 issue, I read Paul Wallace's article entitled, "Testing New Finishes for Their Rubbing Qualities," which begins on pages 24 and 25. I believe Mr. Wallace has made some statements that will

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

prove very misleading to readers who are not thoroughly familiar with the composition of lacquers and other finishing materials. Also, readers who are not well informed about the principles of rubbing finishes.

A lacquer, a synthetic or a varnish-base finishing material is not, at all times, what the various names of these materials hint at or imply. The chief composition of a lacquer is nitrated cotton. The chief composition of a "synthetic" is a synthetic resin, and the chief composition of a varnish base is oil and gum.

Although they are all "brothers under the skin," they all differ in characteristics. We know that lacquer dries fast. Synthetics are next, and varnishes or oils dry the slowest.

They are all "brothers under the skin," for more than one reason, namely:

1) A bakelite resin, for instance, may be incorporated with any of the above named classifications.

2) They are all used for the same general purpose.

3) They differ only in their basic composition.

Once you know the basic composition of a material, it should be easy to determine the finishing

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process most suitable for that material. If it is a lacquer base, lacquer reducers are used. If it is a "synthetic," hydrogenated naphtha reducers are used. If it is an oil or varnish base, turpentine or VMP naphtha reducers are used.

Reducers have quite a bearing on the ultimate results of a finishing material. A properly balanced solvent or reducer should be used for each finishing material, especially in the case of a lacquer-base material, for the following reasons: A lacquer may contain nitro-cotton, synthetic resin and gum.

The nitro-cotton requires a special lacquer solvent. The synthetic resin requires a synthetic-type of solvent, and the gum requires its special solvent.

If too much of any one solvent is used in the reducer, it may throw one of the other materials out of solution. In other words, the cotton in the formula will stand only so much resin reducer; the resin will only stand a certain amount of the other reducers; and the gum, especially if it is shellac, will only take a given quantity of alcohol. If you don't have enough of each solvent to satisfy each solid material, you may have trouble on your hands.

Different solvents and different basic ingredients have various effects on the final finish, and because of this, the proper combinations must be selected.

Amyl acetate and ethyl acetate are both very good lacquer solvents. The first named is slow drying and the second is fast drying. If too much of the amyl acetate is used, the film may not dry hard enough in the required length of time. If not enough amyl acetate is used, the film may blush or cause

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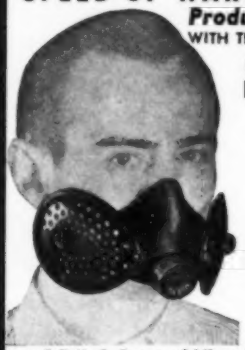

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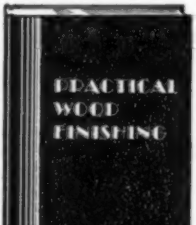
Tells EVERYTHING you need to know about Wood Finishing. Includes types of unfinished furniture, choice of finishes, brushes, accessories, precautions, natural finishes, staining, filling and bleaching, varnish, enamel or paint finishes, finishing with a spray gun and many other fascinating practical subjects. Also includes complete section on furniture repairing and refinishing. Four pages of 32 different foreign and domestic woods illustrated in natural colors. 112 pages fully illustrated.



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other troubles for the finisher.

The balance of basic materials (solids) must be just so, for good results, especially when the dry film is to be rubbed. Plasticizers, along with solvents, play a great part in this phase. *Generally 3% to 10% is a maximum amount of plasticizer used.*

In rubbing we have several accepted abrasives and lubricants or wetting agents to use. These include: 1) pumice and oil; 2) pumice and water; 3) sandpaper and naphtha; 4) sandpaper and water; 5) steelwool; 6) steelwool and wax; 7) steelwool, pumice and wax; 8) rubbing compounds.

Pumice and oil, and pumice and water, may be used on almost any type of finish because they do not soften the film. In some cases pumice and oil will soften varnishes, and for this reason cannot be used.

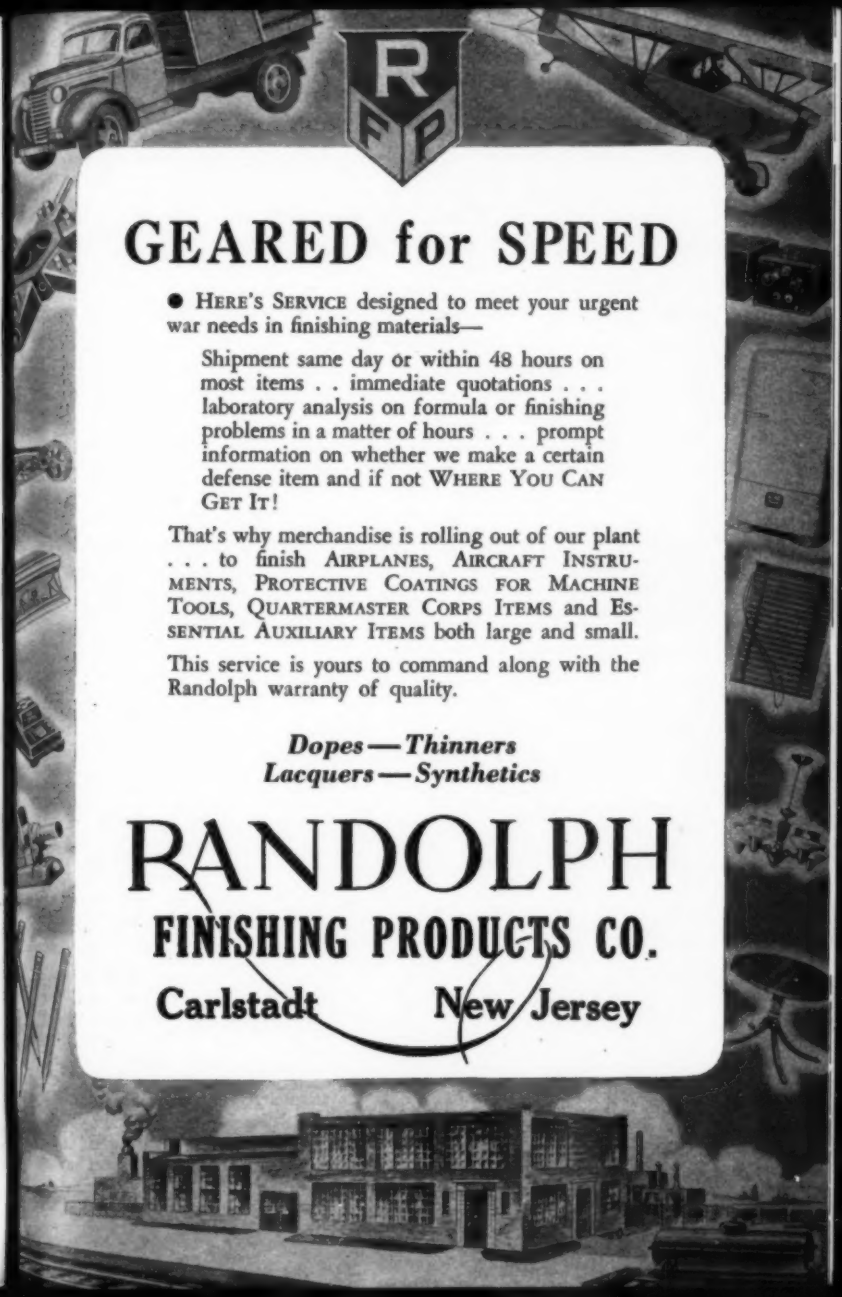
The principal reason for the use of a liquid (oil, water, naphtha) with an abrasive (pumice stone, sandpaper, rottenstone) is to wet the surface and not to soften it.

If a film is softened in the slightest degree, smearing and drag will occur. If the film is not softened by the wetting agent, a bright clear finish will result. A smoky film, after rubbing, is generally caused from either rubbing too soon after applying the finish, or because the wetting agent has attacked the film.

Sandpaper and naphtha may be used on lacquer finishes because the naphtha does not attack or soften the film. It may, to a certain degree, be used on synthetics.

Sandpaper and water may be used on all films, but this combination may be a little too harsh on varnishes. Dry steelwool may be used on all finishes, provided care is taken in doing the rubbing.

Steelwool and wax are being used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ENSIGN DONALD F. MASON, electrified the nation last January with this cryptic message. To prove it wasn't luck he has, since then, sent another sub to Davey Jones' locker. On the production front our finishing experts in the field say, with equal brevity, "PROBLEM SOLVED—PRODUCTION ROLLING."

Our 67 years experience combined with the production facilities of one of the finest plants in the country is your assurance of adequate supply, prompt service and a short cut to get the job done. Listed here are a few of the war products now being coated with our materials.

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more and more extensively for rubbing finishes. Some high-grade piano and furniture factories are using steelwool, pumicestone and water or oil with good results.

Rubbing compounds are used mostly for lacquers—and in a few cases on synthetics. They are seldom if ever used on varnishes because of the softening action they produce.

The following will explain what the difference between wetting the surface and softening it means:

Take a piece of glass and rub it with dry 3F pumice or sandpaper. You will notice that little or nothing happens. Now, wet it with water or kerosene. The abrasive "takes hold" and cuts into the glass surface at once. We know that water does not soften the glass, but wets it to facilitate cutting action.

Wetting the surfaces being rubbed also helps to keep those surfaces and the rubbing pad cool, thereby preventing the development of quick heat from dry friction, which would soften and damage the film of finish being rubbed.—JAY EMVEE.

To Varnish from Lacquer

FROM all reports, the sale of lacquer and lacquer sealers to the manufacturers, without a good priority rating, is about to come to an end for at least a year or so. This, of course, will cause a revolution in the finishing end of the furniture and store fixture industries because of the fact that most of them have adopted lacquer as a standard top-coat and have built their finishing schedules

around that principle. I believe too, that non-grain-raising stains will soon be taken from the market, due to the fact that their solvents are used in large quantities in the munition plants.

This leaves us with only two types of stain to fall back on—namely, the slow method of using water stain, or the inferior method of using oil stains. The novelty and case goods firms can revise their procedures to comply with these necessary alterations, with not too much trouble, but some of the larger furniture firms are definitely "in a mess."

This applies especially to the large conveyorized plants that are equipped with low-bake ovens to force their sealers, top-coats and stains. The average conveyor will dry non-grain-raising stains in 15 minutes at 110° F., and the sealer in 30 minutes at 110° F.; then, the first coat of lacquer for 30 minutes at 110°F. and the topcoat for three hours at 110°F.

Now, compare that with oil stain which must be dried at least two hours at 110° F; then, a varnish-type sealer, which is the only thing to turn to, as we know that even shellac is out. Good furniture requires a sanding job, which means a thoroughly dry sealer—and these varnish-type sealers can not be dried to sand in less than three hours at 110° F.

If a good, high-bodied urea-formaldehyde type of low-bake varnish were used, you might get by with one coat, but this type of varnish is very expensive and not easily obtained. Therefore, the only practical thing to do is to turn to the cheaper grade of fast air-dry synthetics which will average about 42% solids and which can be purchased for approximately $1.20 per gallon in drum lots. Any of these will dry dust free in 15 minutes and take a rub in 15 hours at normal finishing-room temperature.

There seems to me only one solution; that is the consumer shall have to be less choosey about his finish. We can turn our efforts to producing better, and buying more semi-gloss finishes, which shall necessarily be of the synthetic varnish type.—HAROLD T. DEAN.

J. O. Small Joins Hercules

J. O. Small, formerly vice president and technical director of the Arco Co., Cleveland, Ohio, has joined the Synthetics Department of Hercules Powder Co., Wilmington, Dela. He will be engaged in technical development work in the use of synthetic resins and rosin esters, particularly in their application to war materials.

Randolph Finishing Products Supplies War Materials

According to a news release from Randolph Finishing Products Co., Carlstadt, N. J.:

"Before entry of this country in the war, three major plant expansions were required to keep pace with peacetime demands for this company's products; first in moving into present quarters from a neighboring town; second in adding a mezzanine floor, and lastly in erecting an addition doubling the manufacturing space and facilities.

"The Randolph Company's long association with the aircraft industry naturally entailed much research which immediately became vital to the war effort and resulted in a sharply increased demand for its products. Today the Randolph laboratories are concentrating 82% of the experimental and development work to aid in the war effort.

"Efficient planning and management enable this plant to maintain close schedules on production and deliveries. Thus far, both wartime and civilian needs have been met . . . thanks to the expanded facilities that peacetime demands made necessary."

Flow Indicating Devices

Devices that "show what goes on in the pipe line" are illustrated and described in a new 8-page booklet offered free by S. F. Bowser & Co., Fort Wayne, Ind.

Spray Booth Cleaning Compounds

Triad WS and WSF spray booth cleaners for use respectively in booths where oil-base paints and enamels are sprayed, are described in a new leaflet issued by Detroit Rex Products Co., 13005 Hillview Ave., Detroit, Mich. It tells how vital parts of spray booths may be kept from becoming fouled by paint pigments.

Liquid Handling Equipment

An attractive 4-page folder, 8½x11-in., printed in red, black and blue on white paper, shows illustrations and gives brief mention of several items in the liquid-handling equipment manufactured by S. F. Bowser & Co., Fort Wayne, Ind. A copy of the folder should be in every department where liquid materials are handled, stored and used.

Process for Blackening Copper

The Enthone Co., 442 Elm St., New Haven, Conn., has recently issued a 4-page folder describing a new process called Ebonol "C" for direct, simple, low-temperature blackening of copper and copper alloys, including bronze and brass. The characteristics of the coating obtained, and information on the procedure used, as well as mention of other blackening processes are contained in this folder.

Unit Packaging and Shop Trucking

Unit packaging, as developed by the Clark Tructractor Division of Clark Equipment Co., Battle Creek, Mich., is described and illustrated in a new 28-page booklet.

The company reminds us that all-out production for offense requires the swift inter-plant movement of materials, parts, sub-assemblies, etc., with minimum loss in transit, least damage claims, greatest saving in packing materials, plus speed and more speed.

Illustrations show how important parts and products are safely racked in multiple and moved through the factory by power trucks.

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Factory Safety Equipment

An 8-page bulletin, 8½x11-in., printed in red and black, illustrates and describes respirators and many other items of safety equipment which may be needed continuously or in emergencies wherever workmen are employed. Copies of this bulletin should be in the hands of factory safety directors, purchasing agents and foremen. Write Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Penna., for a copy.

Solving Metal Cleaning Problems

A brief description of the methods used in solving industrial metal-cleaning problems is contained in an illustrated leaflet issued by Detroit Rex Products Co., 13005 Hillview Ave., Detroit, Mich. It shows their research, engineering and manufacturing facilities for production of degreasers, washers and chemical cleaners.

Revised Brochure on Infra-Red

"New Facts About Infra-Red," a revised brochure just issued by the Ault & Wiborg Corp., is now available to manufacturers who want information on the use of infra-red to make industrial finishes.

This booklet contains the latest available data on the use of infra-red, with particular emphasis on the speeding up of war industry. According to the brochure the finish on such important items as armor plate, shell cases, machine tools, and motor parts is baked dry by infra-red in a few minutes. Space formerly used for drying racks is now utilized for actual production.

"New Facts About Infra-Red" also contains answers to questions commonly asked about infra-red methods. There are photographs of various types of infra-red installations, including war production applications. Copies of this booklet may be obtained by writing to Ault & Wiborg Corp., 75 Varick St., New York, N. Y.

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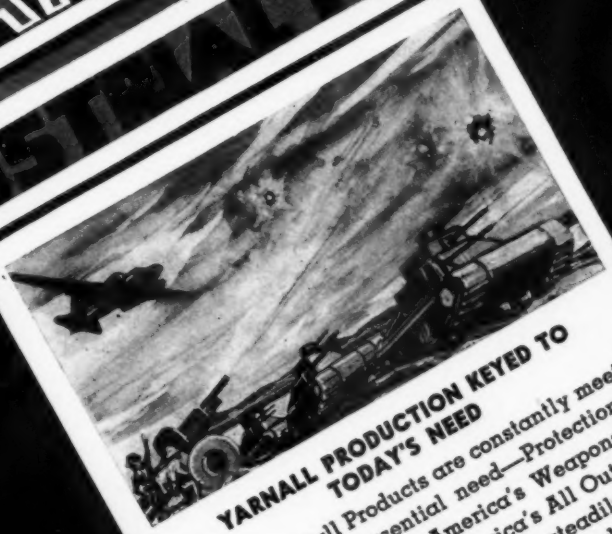

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Editorial

Provide Good Lighting For Better Production

* Regardless of the development of machines and machinery to the point of being "almost human," the human eye remains the greatest of all tools in industry, and employers in increasingly large numbers are doing things to keep this tool sharp.

The principal thing they are doing is to provide workers with the right kind and amount of artificial lighting. They have discovered that without the proper light the worker strains his eyes, and in doing so lowers his efficiency. Seeing drains nervous energy in proportion to the difficulty of seeing.

How about the eye-tools in your plant? Do they have the kind and quality of lighting to keep them sharp all day long—day in and day out? It is a point worth checking into, if for no other reason than to make sure you are getting full return on the wages you pay.—C. W. McDANIEL.

Finishing Progress is Amazing; Read and Keep Up With It

* The finishing field covers a lot of methods, finishing materials and finishing equipment that the average finishing foreman never runs across. At times, during his regular routine, he runs into trouble, and he is at a loss to find out what to do to correct it. He may be using equipment that is not only obsolete but which is also a drag on his speed of production. It may not be his own fault, or his superior's—but by being a subscriber to INDUSTRIAL FINISHING he not only keeps up with the latest finishes, but also the newest type of equipment.

At the time of our first World War, who would have thought that now, after 24 years and in our second war, we could dry our finishes with infra-red drying units, which

* Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

can be arranged to fit any place in a production department, and speed up our drying time beyond our own expectations. Also, who would have thought that we could have finishes, such as wrinkle, drum lining lo-bake enamel, flocks, etc. Also, the new modern types of spray booths, such as the water-wash booths and the automatic spray machines that are playing such a big part of our war work. So, in the long run, if you are a wide-awake man, you can check up on all these things by looking in INDUSTRIAL FINISHING magazine, and find a wealth of knowledge that will help you.

Any subscriber can ask all the questions he wants to, and they will always be answered by the men in the field who have solved the same things that he wants to know. I know that any one of us foremen finishers is always glad to pass on this information to a brother finisher.

The paint and lacquer manufacturers, as well as solvent companies, are always working to improve our materials and help us keep rolling along, and they are always willing to send out a man to check our materials and make it easier for us to meet our production requirements.

We can do our best now by working together and helping each other. I know that INDUSTRIAL FINISHING is always willing to give us that helping hand, as we all have a lot of things to learn each day as this world progresses.

Let us get together and start teaching our sprayers how to become expert finishers and finishing foremen. so that we can keep new life in the field, and also put the finishing trade up in the front where it rightfully belongs. We will need these men who are trained to accept the responsibility in the future, as there are too few finishing foremen and technical men today in the production end of finishing. So let us roll up our sleeves, and go to work with a determination to better the entire finishing field.—H. FORD.

Critical Temperatures and Lower Costs

★ Some time ago we had occasion to evaluate the variables which affected the paint material costs in a plant that consumed about 3000 gallons of mixed lacquer finishes per day. The incident which caused the study to be made was the sudden increase of about 15% in this cost, one week over the cost figure for the previous week.

The management desired to know the reason why. If it were faulty operations, then the paint superintendent's methods needed to be corrected. If it were due to faulty equipment then new designs or changes should be made. If it were due to variations in paint material, as received, then the vendor should be notified.

Minor paint operating variables either cancelled each other out or were added into two charts which correlated the paint used per unit with the variables of (1) mass or volume of production, and (2) average weekly mean temperature.

Since the plant was operating on three shifts, the weather bureau figures for mean temperatures over the 24-hour period were used. A chart was prepared, in which the vertical axis represented usage of paint material per unit, and the horizontal axis represented the average weekly mean temperature. Based on the lacquer thinner formulation then being used, the criti-

cal temperature was found to be 76° F. Below this temperature costs were normal, and paint usage per unit was almost a parallel line with the horizontal temperature axis of the chart. *Above this temperature of 76°F. the paint usage, per unit graph turned almost 90°, to become almost perpendicular to the temperature axis of the chart. For each degree increase in average mean weekly temperature, the paint usage per unit increased almost 2%. This temperature variable accounted for about 80% of the cost variation, while the volume of production variable accounted for about 20% of the cost variation.*

Two things were done to help maintain lower costs: For summer time, 1) a "slower" evaporation lacquer thinner was used, and 2) air-conditioned spray booths were provided. For winter time, 1) a "faster" evaporating lacquer thinner was used, and 2) a moderate spray booth temperature was maintained.

Other plant managers may find these suggestions profitable by lowering of costs and making more efficient use of the vital war materials, which are used as protective coatings and industrial finishes.

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Gallons, $2.00—Quarts, 50c—Delivered.
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Best Foremen Know the Work And Can Instruct Workers

★ Some time ago an article appeared in this magazine rating the qualifications of a finishing foreman. Among other things, the difference between an experienced man and a man with executive ability was discussed. The author of the article expressed the thought that executive ability should rate first and experience next. Thinking it over, after reading the article, I felt there was much sound

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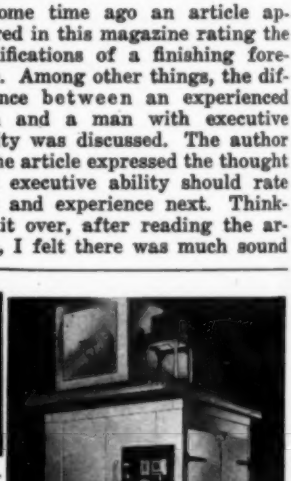

judgment used in deciding that executive ability should be the main qualification.

However, there is another side of the story. I was reminded of this while talking with a finisher who works in quite a large shop where they have been having some trouble in their finishing room. I soon diagnosed the trouble as being mostly with the foreman and not the men. During the busy season of the year, and now in war time, sprayers, repair men, etc., are not always available, therefore a shop foreman must break in new men, which requires considerable time and expense. That's where this factory was having its trouble. The foreman who had been placed in charge of this plant, had a very limited knowledge of the fine details of handling a finishing room. He was qualified in executive ability, which we have always held was a natural gift rather than a learned profession.

During their rush season and high production, rejects were becoming numerous and very costly. It was chiefly due to the fact that the foreman could not instruct the new men how to spray or how to do whatever their job happened to be. Here is where many shops are weak. The management stresses production and expects it from men who don't know how to do the work correctly.

The sales appeal is in the finish and the finish must be right first, with production coming second. In order to have satisfactory production, proper instructions must be given to the men whenever they need it or ask for it. Questions they ask must be answered courteously, promptly and accurately.

I think it takes both experience and executive ability for a foreman to be a success. He should be able

Officially approved* for complete respiratory protection against paint-spray vapors and pigments. Uses air from regular compressed air line. Lightweight, comfortable, permits full working freedom—features Navy-type facepiece, bump-proof air flow valve, double exhalation valves, quick-release connection. Send for Bulletin No. CS-9.

*U. S. Bureau of Mines Approval No. 1909

MINE SAFETY APPLIANCES COMPANY
Braddock, Thomas and Meade Sts. Pittsburgh, Pa.
District Representatives in Principal Cities

"VICTORY" FINISHES

Army-Navy Aeronautical Specification
Nitrate Cellulose Lacquers, Dopes, Thinners and Primers

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Quartermaster Corps
Olive Drab Synthetic Enamels

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Type I or II
Black Acid-Proof Ammunition Paint

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Wrinkle Finishes

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The Sufficient Method Producing Light-Wood Modern Furniture—Cheerful Interior Woodwork
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Each customer's shipment, whether one drum or a carload receives PROPER and SEPARATE TREATMENT. Write to:—
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1019 Broad Street, Newark, N. J.
or
HAMMOND CHEMICAL SERVICE,
241 Brunswick St., Hammond, Ind.

to pick up a spray gun and spray; he should know how to mix colors, patch or do any work that a job may require. This not only helps the men in experience, but makes them look up to him as a man who knows his job and they respect him for it.

A few years back this shop, referred to as having trouble, had a man with these qualifications and they had one of the smoothest running organizations I ever saw. I think that all shops should have close and instructive cooperation between workers and foremen, to make a better product and more harmonious atmosphere for everyone concerned.—HOWARD F. DEAN.

Letters from I. F. Readers

(Continued from page 8)

in the United States Patent Office in 1938 by Crosbie-Sarale, Inc., Richmond, Va., covering paint, enamel, varnishes and lacquers.

There is also a Wondersheen Co. located at 1055 San Pablo Ave., Richmond, Calif. Perhaps one or the other of these is the company you are inquiring about.—National Paint, Varnish & Lacquer Ass'n.

On Board U. S. Destroyer, Pacific Ocean

March 2nd—Well, we are bound for Honolulu at last. Now that I have the chance to think things over I wonder how I stayed 7 months and 4 days on that sand bar and on Sand Islet [Johnston Island] but it was fun and I have no regrets.

This destroyer that we are on has not been too kind to over half the gang. Looks like a rain storm coming up.

This old tin can sure does roll from beam end to beam end and is heavy on the port side. I believe that the Hawaiian boys would say, "She does bad hula"; or at least, that was their description of the Waikolu that we ferried back and forth on when I first came down.

Full moonlight now, way out here, and at dusk ones imagination can run rife as the waves assume imaginative shapes and the white streaks of foam head toward the ship.

No one mentions submarines much, and then only in a highly humorous vein. It's funny, at that, and nothing at all to fear. Even the visiting Jap fireman's convention was darned funny. Tell you later from the mainland. There are three Hawaiian boys

The Four Famous Stix-Talk

We are the four famous brands of burning-in Stix, born of years of research and new materials development. We are made in 150 colors plus 100 special formulae to meet any need. Our special color matching service is yours for the asking.

I am Mr. LACSTIX—made of the finest materials. I do not lift or shrink in or under lacquer. I am free of color specks and help the finisher repair his surface in one operation. I am made of special resins that withstand the fast solvenizing action of high powered solvents used in modern synthetic and lacquer finishes.

I am Mr. SHELSTIX and do my work much better than the average so-called shellac stick because I am made from the choicest shellac gums and resins.

I am Mr. CEMENTSTIX—made of more pure gum and colors than the average wood cement. I am made in two lengths, 7⅛ or 6 inches for your convenience.

I am Mr. PORCELSTIX—made from a unique combination of special resins and I am made in fourteen colors. I am easy to use and have permanent colors. I am waterproof and will stand a tremendous amount of heat. I repair chipped porcelain, marble or tile within ten minutes. You can improve my lustre to match the original with a little heat.

nd for a FREE TESTING SAM-LE of any of the above four fa-us brands and convince yourself its proven superiority.

FINISHINE LABORATORIES, Inc.

627 TALLMAN ST. SYRACUSE, N. Y.

CQUERS — POLISHES — HARDWARE — FURNITURE FINISHING SUPPLIES

CAN'T GET LACQUER? . . . . TRY

SUPER-KAMEX *Sensational FINISH*

The New Finish that combines best features of Lacquer and Varnish

Cabinet and furniture finishers find Super-Kamex is just what they have always wanted—a new and improved finish with the best features of varnish and lacquer without the faults of either. Has twice the solid content of lacquer and dries as quickly. Can be sanded or polished within an hour. Waterproof, alcohol and alkali resistant. Best results with spray but brushes well if thinned with 5% to 10% turpentine. Non-lifting—can be applied to any surface. One coat of SUPER-KAMEX equivalent to two of clear patented lacquer. An ideal product for furniture finishing and refinishing. Comes in clear gloss, semi-gloss and flat. FREE—Send today for liberal SAMPLE and visual proof panel which shows comparative results. Also ask about Dry Stains, Stick Shellac, Shellac Enamel. Full information.

You Can Count on Campbell

M. C. CAMPBELL Company

"Fine Finish Leadership for 25 Years"

706 EAST 19TH ST. KANSAS CITY, MO.

Gun for Victory with

CROWN

SPRAY GUN

No 25

It's New . . . Quality constructed to stand the gaff for all classes of painting and finishing . . . Full Spray Width and Material Adjustment . . . Write for literature.

CROWN SPRAY GUN MFG. CO.

1918 VENICE BLVD., LOS ANGELES, CALIF.

Warehouses in Principal Cities

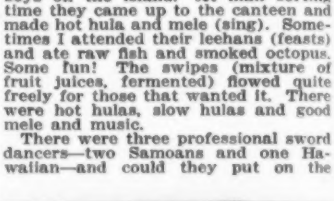
aboard and one native California Spaniard. All play the guitar and sing, so those of us who are not seasick sit on deck night and day and have a hell of a good time.

There's been a pretty good hearted bunch on Johnston [Island] all the way through. We raised over $3000.00 at Christmas so that all service men got a $10.00 canteen book, and today we raised a bunch of dough for the mess men.

Damn those waves that beat over when we suddenly change our course. We are convoying another boat and it's like a slow freight through Arkansas.

At one time there were over 50 local boys on the island. At mail sorting time they came up to the canteen and made hot hula and mele (sing). Sometimes I attended their leehans (feasts) and ate raw fish and smoked octopus. Some fun! The swipes (mixture of fruit juices, fermented) flowed quite freely for those that wanted it. There were hot hulas, slow hulas and good mele and music.

There were three professional sword dancers—two Samoans and one Hawaiian—and could they put on the



This fellow, eating poi with one finger, is too dainty. I like 4 and 5-fingered poi. I eat raw fish, etc.; guess I'm going native.

sacred Samoan sword dance! On Armistice night the quietest fellow in the local boy's crowd got up and did a big apple, truckin, jumpin jive hula (with bad mele words) that would have made Hollywood bowl over. So you see, Mr. Rohr, we had our fun.

Fishing? Say man you would call me a double-barreled liar if I told you

the truth. But it was very very good. Besides using the customary fishing gear, I used nets, spears and bow and a fisherman's arrows. For some screwy reason I decided to join the archery bunch. The war halted most of that.

I am sorry that I cannot go into details about our visitors' bum marksmanship and other authentic details. That will have to be done from the mainland, if you desire more details.

Did you ever hear of a painter using a brush or spray and then throwing dirt or coral sand on the fresh paint? Well I did, and the navy commanding officer said it was the best yet. It makes a nice false shadow and breaks up contours fine. Better than specular colors in this case. I went in for a bit of that also, as I was the only one who had any experience in such stuff, or who had the crust to attempt it. But Powder Breeches, the Navy C. O., said it was swell and I was doing very valuable work. Had a sailor for a helper, after the major portion of the gang skipped out and the other two laid down, and I sure had fun. One painter turned into a steel worker and the foreman turned into something else which I do not care to state.

A sailor just asked me if I wrote down all the towns we were going through. Hope I have been explicit in detail.

What do you mainlanders think of MacArthur's good work? The doctor who fixes up my bum knee knows him real well. Says he knows every rock, swamp, gulley, stream and bridge on the island and that is why he retired to Bataan Peninsula and did so well.

There is a lot more going on out here and west of here that will take a long time to get details on, but there is much in our favor, in spite of all reports.

The Japs got badly crossed up . . . . They are sure losing their tin fish very fast; also their airplanes.

So far I haven't lost a meal. Lots of the fellows are up on deck again eating just plain crackers.

Sure is tough to try to write on the deck of a destroyer at sea. The other ship had a little engine trouble so we are way behind schedule.

We were not allowed to bring any shrapnel souvenirs with us. Well, it must be aloah again. Will drop a line or card from Honolulu. Best regards. —G. L. Hardy (Pacific Naval Air Base Contractors).

Dustrid Mask

On page 29 of your February 1942 issue of INDUSTRIAL FINISHING, we find an article pertaining to "Dustrid Masks" which, we understand, are manufactured by the Allergy & Medical Products, Inc. We are interested in this mask and would like to have catalog and prices, as well as information as to where we might obtain a sample of it. What is the address of Allergy & Medical Products, Inc.? —Ski Mfg. Co.

It's P. O. Box 1399, Cincinnati, Ohio. —ED.

Classified Advertising

Rate: 45 cents per line per insertion — minimum $1.35

WANTED.

Used or new centrifugal whirling machine. Motor or belt driven oblique tumbling barrels. An early reply appreciated. Address IF-881, care Industrial Finishing.

WE BUY DIRTY SOLVENTS!

Don't throw away spent cleaning thinner, degreaser residues, etc. Send us a sample for quotation. We also reclaim for customers. DYTEX CHEMICAL CO., 267 Plain St., Providence, R. I.

FOR SALE.

Used but in good operating condition, 3 only DeVilbiss Spray Booths each 8′ wide x 6½′ high x 5′7″ deep, top opening to 22″ diam. stack 18′8″ high. Aluminum fans are four bladed and equipped with 1-h.p., 3-phase, 60-cycle, 1725-r.p.m. motors. Apply KENNEDY MANUFACTURING COMPANY, Van Wert, Ohio.

PRACTICALLY NEW

Manufactured by R. C. Mahon Co., Detroit—Hot Chemical bath followed by hot rinse, then hot air dry, overall width 5 ft., length 35 ft.

Capacity 1,000 metal units ½ sq. ft. each, flat, per hour. Maximum capacity flat units up to 36″ x 36″. Conveyor width 36″, length 32 ft. Powered by 3 motors total 5 HP. for bath, rinse and dryer section. Gas fired. For quick sale at big discount.

MIRO-FLEX CO., INC.,
WICHITA, KANS.

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New Home of Finishine Laboratories, Inc.

Mr. Elmore W. Hagadorn, president of the Finishine Laboratories, Inc., announces the opening of the company's newly purchased factory, warehouse and offices at 627 Tallman St., Syracuse, N. Y. This new plant, according

to the announcement, provides several times as much space and facilities for the manufacture of the company's well - known Lubrisol Pad - O - Paque Process, Lacstix, Shelstix, Porcelstix and other finishing supplies which have attained wide national acceptance among practical finishers.

The announcement also states that the new factory and warehouse carries a complete line of finishing supplies, including furniture and upholstery hardware.

Donovan Joins U. S. Navy

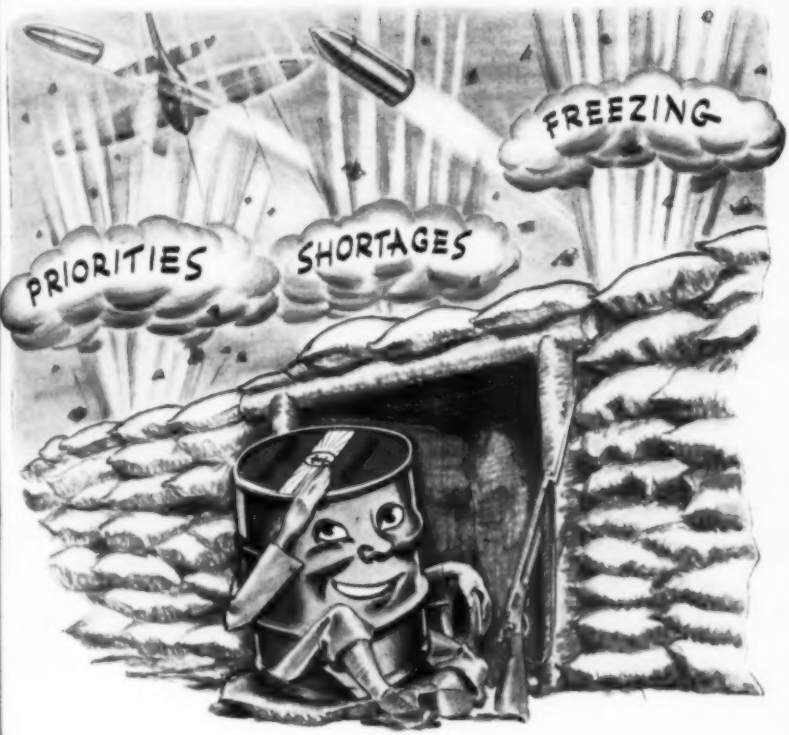
David Donovan has left the Advertising Department of Interchemical Corp., 75 Varick St., New York, N. Y., to receive a commission as Ensign in the United States Navy. He is now on active duty at the Naval Air Station, Jacksonville, Fla.

Elon R. Brown, formerly with Station KMAC, San Antonio, Texas, and the Lambert Pharmacal Co., St. Louis, Mo., has joined Interchemical's advertising staff.

Expanded Cleaning Service

The change-over of the metal industries from domestic to war production, combined with the rapid turnover in personnel in many plants, has placed a serious strain on the efficient operation of industrial cleaning equipment.

To better serve the users of all kinds of cleaning equipment and materials, the Detroit Rex Products Co., Detroit, Mich., is increasing its service engineering force by adding over 30% to the number of its field personnel.



"STILL PRESENT AND ACCOUNTED FOR, SIR"

Yes, O'Shelac is still on the job. It is highly adaptable to ALL furniture finishing — has better build and requires shorter drying time before sanding.

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Manufacturers of Wood & Metal Finishing Materials

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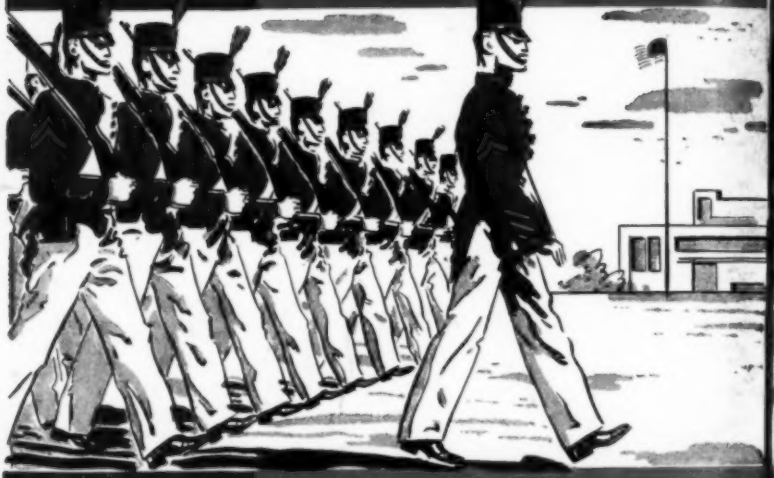

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